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# THE INDUSTRIAL ARTS INDEX

FIRST TWO-YEAR CUMULATION  
[SEVENTH ANNUAL VOLUME]

1918—1919

SUBJECT INDEX TO A SELECTED LIST OF ENGINEERING  
AND TRADE PERIODICALS

EDITED BY  
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# Industrial Arts Index

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Put out of sight or discard altogether your 1918 annual volume of the Industrial Arts Index. This is not a command but a friendly warning. Since this volume is a cumulation covering the years 1918 and 1919 and therefore includes everything that the 1918 cumulation contains, the use of the 1918 annual would be a waste of time; all the benefit which justifies the added labor and cost of putting together in one alphabet the two years' record would be lost.

After proving mathematically that during a ten year period there is greater efficiency in the two-yearly or three-yearly than in five-yearly cumulations, the publishers of the Industrial Arts Index sought an expression of opinion from their subscribers, with the result that the two-year plan was adopted. Hereafter, if this plan proves satisfactory, an annual cumulation, covering one year, will be published in the even years and a two-year cumulation will be published in the odd years.

On the following pages will be found a list of periodicals indexed. A few of these are indexed only from January 1919. These are: Architectural Forum, Aviation, Color Trade Journal, Electric Journal, Flying, Journal of Electricity, Marine Review. Owing to the delay in publishing caused by the printers' strike last fall, the December numbers of the New York periodicals did not appear in time for indexing in this volume but will be included of course in the next current issue.

In response to the wishes of our subscribers, ascertained by a carefully tabulated vote, the following additional magazines have been selected for indexing in 1920:

American Ceramic Society. Journal  
American Electrochemical Society. Proceedings  
American Journal of Science  
American Society for Testing Materials. Proceedings  
American Society of Refrigerating Engineers. Journal  
Blast Furnace and Steel Plant  
Canadian Engineer  
Chimie et Industrie  
Commercial and Financial Chronicle  
Electrician  
Engineering  
India Rubber World  
Institution of Mechanical Engineers. Journal  
Journal of Physical Chemistry  
Mining and Scientific Press  
Monthly Labor Review  
National Petroleum News  
Nation's Business  
Paper  
Popular Mechanics  
Power Plant Engineering  
Printers' Ink  
Society for the Promotion of Engineering Education. Proceedings  
Society of Automotive Engineers. Journal  
Society of Chemical Industry. Journal  
U.S. Bureau of Labor Statistics. Bulletin  
U.S. Geological Survey. Bulletin  
Wireless Age

The method of selecting periodicals by vote insures the indexing of those that are actually in use in libraries. It is also the policy of the Industrial Arts Index to index each magazine very closely. In the case of the more important periodicals found in the majority of libraries subscribing to the Index, even short paragraphs are often indexed, and articles of value are usually assigned several subject headings in order that every aspect of the subject may be covered. The headings moreover are made very specific and many

## NOTES AND ANNOUNCEMENTS

sub-headings are made in order that the user of the Index may not have to read thru a long list of references to find material on the particular phase of a subject in which he is interested.

It may be permissible to refer those interested in farm buildings, agricultural machinery, rural sanitation, and other branches of agricultural engineering to the Agricultural Index for additional material on these subjects. Material on commercial subjects which will be more largely represented hereafter in the Industrial Arts Index may also be found in the Readers' Guide to Periodical Literature. But the addition of Printers' Ink, Commercial

and Financial Chronicle and Nation's Business to the list of magazines indexed in the Industrial Arts Index will make it one of the most useful tools of the business library.

Miss Charlotte Noyes deserves credit for a good part of the indexing of the 1918 periodicals. Miss Jessica Doty, formerly of the Engineering Societies Library, has recently assisted in the indexing. Miss Emily Anderson and Miss May Carpenter have prepared copy for the printer and assisted in proof-reading. Miss Elsie Schonholtz has typewritten a large part of the copy. Miss Louise Teich in addition to editorial work has supervised the Index from its beginning in 1913.

# List of Periodicals Indexed

- Am Arch**—The American Architect. \$10; single numbers 25c. Architectural & Building Press, Inc., 243 W 39th St, New York.
- Am Chem Soc J**—Journal of the American Chemical Society. \$6. Charles L. Parsons, sec., 1709 G St, N. W., Washington, D. C.
- Am Gas Eng J**—American Gas Engineering Journal. \$3; single numbers 10c. American Gas Light Journal, Inc., 150 Nassau St, New York. Formerly American Gas Light Journal.
- Am Gas Inst Pro**—Proceedings of the American Gas Institute, tenth and eleventh annual meetings, 1915-1916. ea \$7.50 to libraries. American Gas Institute, 29 W 39th St, New York.
- Am Gas Light J**—See Am Gas Eng J
- Am Ind**—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.
- Am Inst Arch J**—Journal of the American Institute of Architects. \$5; single numbers 50c. American Institute of Architects, The Octagon, Washington, D. C.
- Am Inst E E Pro**—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. R. L. Hutchinson, sec., 33 W 39th St, New York.
- Am Inst Min Bul**—Bulletin of the American Institute of Mining and Metallurgical Engineers. subs. \$10; single numbers \$1; to members, public libraries, and educational institutions, \$5; single numbers 50c. B. Stoughton, sec., 29 W 39th St, New York.
- Am Lumberman**—American Lumberman. \$4; single numbers 15c. American Lumberman, Manhattan Bldg., 431 S. Dearborn St, Chicago.
- Am Mach**—American Machinist. \$5; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Am Soc Heat & V E**—Transactions of the American Society of Heating and Ventilating Engineers. American Society of Heating and Ventilating Engineers, 29 W 39th St, New York.
- Am Soc M E J**. See Mech Eng
- Am Water Works Assn J**—Journal of the American Water Works Association. \$5; American Water Works Assn., Mount Royal and Guilford Avenues, Baltimore, Md.
- Arch & Bldg**—Architecture and Building. \$2.50; single numbers 25c. William T. Comstock Co., 23 Warren St, New York.
- Arch Forum**—Architectural Forum. \$6; single numbers 60c. Rogers and Manson Co., 85 Water St, Boston.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 115 W 40th St, New York.
- Automobile**—See Automotive Ind
- Automotive Ind**—Automotive Industries. \$3; single numbers 20c. Class Journal Co., 231 W 39th St, New York. Formerly Automobile
- Aviation**—Aviation and Aeronautical Engineering. \$3; single numbers 25c. Gardner-Moffat Co., Inc., Hartford Bldg., 22 E 17th St, New York.
- Bldg Age**—Building Age. \$2; single numbers 25c. Architectural and Building Press, Inc., 243 W 39th St, New York.
- Boston Soc C E J**—Journal of the Boston Society of Civil Engineers. \$4 (ten numbers); single numbers 50c. Boston Society of Civil Engineers, 715 Tremont Temple, Boston.
- Chem & Met Eng**—Chemical and Metallurgical Engineering. \$8; single numbers 25c. McGraw-Hill Co., Inc., 10th Av, at 36th St, New York. Formerly Metallurgical and Chemical Engineering
- Coal Age**—Coal Age. \$3; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Color Tr J**—Color Trade Journal. \$5; single numbers 50c. Color Trade Journal, Inc., 21 E 40th St, New York.
- Concrete**—Concrete. \$2; single numbers 20c. Concrete-Cement Age Pub. Co., Telegraph Bldg., Detroit, Mich. Formerly published as Concrete-Cement Age.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 407 S Dearborn St, Chicago.
- Econ Geol**—Economic Geology. \$3.50; single numbers 60c. Economic Geology Pub. Co., 41 North Queen St, Lancaster, Pa.
- Elec J**—The Electric Journal. \$2; single numbers 20c. The Electric Journal, 1204 Keenan Bldg., Pittsburgh, Pa.
- Elec Ry J**—Electric Railway Journal. \$4; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Elec R**—Electrical Review. \$3; single numbers 10c. International Trade Press, Inc., 542 Monadnock Bldg., Chicago. Formerly Electrical Review and Western Electrician.
- Elec W**—Electrical World. \$5; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Engineer**—Engineer. Thick paper ed £3 7s 6d; Canadian subs £3 3s; thin paper ed £3 3s; Canadian subs £2 18s 6d. Engineer, 33 Norfolk St, Strand, London, W.C. 2.
- Eng & Contr**—Engineering and Contracting. \$3. Engineering and Contracting Pub. Co., 608 S Dearborn St, Chicago.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Eng N**—Engineering News-Record. \$5; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York. Engineering News consolidated with Engineering Record beginning April 5, 1917.
- Eng Rec**—See Eng N
- Eng Soc W Pa**—Proceedings of the Engineers' Society of Western Pennsylvania. \$5; single numbers 50c. Engineers' Society of Western Pennsylvania, 568 Union Arcade Building, Pittsburgh, Pa.
- Factory**—Factory. \$3; single numbers 25c. A. W. Shaw Co., Wabash Av & Madison St, Chicago.
- Flying**—Flying. \$3; single numbers 25c. Flying & Assn., Inc., 280 Madison Av, New York.
- Foundry**—Foundry. \$2; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- Gas Age**—Gas Age. \$3; single numbers 25c. Progressive Age Pub. Co., 52 Vanderbilt Av, New York. Formerly Progressive Age.
- Gen Elec R**—General Electric Review. \$2; single numbers 20c. General Electric Co., Schenectady, N. Y.
- Good Roads** n s—Good Roads new series. \$3; single numbers 10c. E. L. Powers Co., 150 Nassau St, New York.
- Heat & Ven**—Heating and Ventilating Magazine. \$2; single numbers 20c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Horseless Age**—Horseless Age. \$1; single numbers 10c. Horseless Age Co., 95 Madison Av, New York. Horseless Age consolidated with Motor Age, Motor World and Automotive Industries in June, 1913, with title Motor Age.

# LIST OF PERIODICALS INDEXED

- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Ill U Eng Exp Sta Circ**—Illinois University Engineering Experiment Station. Circular. Univ. of Ill., Urbana.
- Illum Engr**—Illuminating Engineer. 12s 6d; single numbers 1s 3d. Illuminating Engineering Pub. Co., 32 Victoria St, London, S. W. 1.
- Illum Eng Soc**—Transactions of the Illuminating Engineering Society. \$5; single numbers 75c. Illuminating Engineering Soc., 29 W 39th St, New York.
- Ind Management**—Industrial Management \$3; single numbers 35c. Industrial Management, 6 E 39th St, New York.  
Formerly Engineering Magazine.
- Inland Ptr**—Inland Printer. \$4; single numbers 40c. Inland Printer Co., 632 Sherman St, Chicago.
- Inst E E J**—Journal of the Institution of Electrical Engineers. single numbers 7s. E. & F. N. Spon, Ltd., 57 Haymarket, London, S. W. 1; Spon & Chamberlain, 123 Liberty St, New York.  
The Institution premises have been taken over by H. M. Government and the temporary offices are at 1 Albemarle Street, London, W. 1.
- Int Marine Eng**—International Marine Engineering. \$2. Aldrich Pub. Co., 6 E 39th St, New York.
- Iron Age**—Iron Age. \$5; single numbers 25c. Iron Age Pub. Co., 239 W 39th St, New York.
- Iron Tr R**—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- J Account**—Journal of Accountancy. \$1; single numbers 85c. Ronald Press Co., 20 Vesey St, New York.
- J Elec**—Journal of Electricity. \$2.50; single numbers 25c. Technical Pub. Co., 171-173 Second St, San Francisco, Cal.
- J Fr Inst**—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$6; single numbers 60c. American Chemical Society, Easton, Pa.
- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$3; single numbers 35c. Industrial Press, 140 Lafayette St, New York.
- Marine R**—Marine Review. \$2; single numbers 20c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- Mech Eng**—Mechanical Engineering, the Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W 39th St, New York.
- Met & Chem Eng**—See Chem & Met Eng
- Metal Ind**—Metal Industry. \$1; single numbers 10c. Metal Industry Pub. Co., 99 John St, New York.
- Metal Work**—Metal Worker, Plumber & Steam Fitter. \$3; single numbers 10c. Architectural & Building Press, Inc., 243 W 39th St, New York.
- Mining and Metallurgy**. See Am Inst Min Bul
- Mo U Sch Mines & Met Bul**—Bulletin of the University of Missouri, School of Mines and Metallurgy. Univ. of Mo., Rolla.
- Mo U Sch Mines & Met Bul tech ser**—Bulletin of the University of Missouri, School of Mines and Metallurgy, Technical Series. Univ. of Mo., Rolla.
- Motor Age**—Motor Age. \$3; single numbers 20c. Class Journal Co., 59 E. Madison St, Chicago.
- Munic Eng**—Municipal and County Engineering. \$2; single numbers 25c. Engineering Pub. Co., 702 Wulsin Bldg, Indianapolis, Ind.
- Munic J**—Municipal Journal and Public Works. \$3, single numbers 10c; special numbers 25c. Municipal Journal and Engineer, Inc., 243 W 39th St, New York.
- Power**—Power. \$3; single numbers 10c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Ry Age**—Railway Age. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.  
Formerly Railway Age Gazette
- Ry Mech Eng**—Railway Mechanical Engineer including the American Engineer. \$5; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.  
Formerly Railway Age Gazette, Mechanical edition.
- Ry R**—Railway Review. \$4; single numbers 15c. Railway Review, 537 S Dearborn St, Chicago; 30 Church St, New York.  
Formerly Railway and Engineering Review.
- Sci Am**—Scientific American. \$5; single numbers 10c. Munn & Co., 233 Broadway, New York.
- Sci Am S**—Scientific American Supplement. \$5, single numbers 10c. Munn & Co., 233 Broadway, New York.  
Changed to Scientific American Monthly beginning January, 1920.
- Sibley J**—Sibley Journal of Engineering. \$2; single numbers 20c. Sibley College, Cornell Univ., Ithaca, N. Y.  
Suspended publication temporarily.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.
- Textile World**—Textile World Journal. \$3. Braddon, Lord & Nagle Co., 334 4th Av, New York.  
Formerly published as Textile World Record, monthly at \$2
- U S Agric Bul**—United States, Dept. of Agriculture, Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.  
Contributions from the Bureau of Chemistry, Forest Service and Office of Public Roads are indexed, also selected publications of other bureaus.
- U S Bur For & Dom Com**—United States, Bureau of Foreign and Domestic Commerce. Special agents series. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- U S Bur For & Dom Com misc ser**—United States, Bureau of Foreign and Domestic Commerce. Miscellaneous series. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- U S Bur Mines Bul**—United States, Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Circ**—United States, Bureau of Mines. Miners' circular. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Tech Pa**—United States, Bureau of Mines. Technical paper. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Stand Bul**—United States, Bureau of Standards. Bulletin. Grats to educational and scientific institutions and to government depositories. U. S. Bureau of Standards, Washington, D. C.  
Discontinued
- U S Bur Stand Circ**—United States, Bureau of Standards. Circular. U. S. Bureau of Standards, Washington, D. C.
- U S Bur Stand Sci Pa**—United States, Bureau of Standards. Scientific papers. U. S. Bureau of Standards, Washington, D. C.
- U S Bur Stand Tech Pa**—United States, Bureau of Standards. Technologic papers. U. S. Bureau of Standards, Washington, D. C.
- U S Sp Cons Rep**—United States, Special consular reports. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- W Soc E J**—Journal of the Western Society of Engineers. \$3 (ten numbers); single numbers 50c. Western Society of Engineers, 1735 Monadnock Bldg, Chicago.
- Wis U Bul Eng S**—Bulletin of the University of Wisconsin, Engineering Series. Univ. of Wis., Madison

# List of Pamphlets Indexed

- Boston public library, Boston, Mass.  
Occupations; short lists of books in the public library. (Brief Reading Lists no 9)
- Bureau of railway economics.  
Misc. ser. 33. Railway stockholders: December 31, 1917.  
Winter railroading.
- California industrial accident commission, 525 Market St., San Francisco.  
Mine safety rules.  
Quarry safety rules.  
Safety rules for gold dredges.
- California safety news. Industrial accident commission, San Francisco.  
Bulletins.  
V. 2, no. 3, March, 1918.  
V. 2, no. 4, April, 1918.
- Canada honorary advisory council for scientific and industrial research, Ottawa.  
Report.  
3. De-tarring of gas by electrical precipitation. J. G. Davidson.
- Council of national defense. Woman's committee.  
Woman in the war; a bibliography. M. R. Nims.
- Federal board for vocational education, Washington, D.C.  
Bulletin.  
11. Emergency war training for oxy-acetylene welders.
- Iowa state college. Engineering experiment station, Ames.  
Bulletins.  
39. Good roads and community life in Iowa. J. E. Brindley and J. S. Dodds.  
46. Electric pumping with results of tests and operating records. H. W. Wagner.  
52. Spacing and depth of laterals in Iowa underdrainage systems and the rate of runoff from them with data from investigations. W. J. Schlick.  
189. Silo construction. C. K. Shedd and W. A. Foster.
- New York (state). Department of labor.  
Special bulletin.  
86. Dangers in the manufacture and industrial uses of wood alcohol.
- Press of the engineer school, Washington, D.C.  
Professional memoirs.  
v.9, no.48. Poisonous gases in warfare. H. E. Haferkorn and F. Neumann.  
v.10, no.54, supp2. Screw threads. H. E. Haferkorn.
- Russell Sage Foundation library, 130 E. 22d St., N.Y.  
Bulletin.  
86. Industrial hygiene.
- Technical association of the pulp and paper industry, 181 E. 23d St., N. Y.  
Technical association papers. Series 2.  
Literature of the paper industry. p. 11-23. M. Hubbard.
- United States. Bureau of applied economics, Washington, D. C.  
Changes in cost of living, 1914-1919.  
Standards of living.  
Wages in various industries.
- United States. Bureau of the Census.  
Bulletin.  
135. Cotton production and distribution, season of 1916-17.
- United States. Bureau of Foreign and Domestic Commerce.  
Tariff series.  
27. Foreign tariff notes.  
37. Customs tariff of Australia. L. Dornatzky.  
39. British control of imports and exports, with lists of prohibited goods. L. Dornatzky.
- United States. Bureau of Labor Statistics.  
Bulletins.  
215. Industrial experience of trade-school girls in Massachusetts.  
217. Effect of workmen's compensation laws in diminishing the necessity of industrial employment of women and children. M. K. Conyngton.  
218. Wages and hours of labor in the iron and steel industry: 1907-1915, with a glossary of occupations.  
225. Wages and hours of labor in the lumber, millwork, and furniture industries, 1915.  
227. Proceedings of the Employment managers' conference, Philadelphia, Pa., April 2-3, 1917.  
231. Mortality from respiratory diseases in dusty trades. F. L. Hoffman.  
234. Safety movement in the iron and steel industry, 1907-1917. L. W. Chaney and H. S. Hanna.  
235. Employment system of the Lake carriers' association. P. F. Brissenden.  
236. Effect of the air hammer on the hands of stonecutters.  
239. Wages and hours of labor in cotton goods manufacturing and finishing, 1916.  
240. Comparison of workmen's compensation laws of the United States up to December 31, 1917. C. Hookstadt.  
242. Food situation in Central Europe, 1917.  
244. Labor legislation of 1917.  
247. Proceedings of the Employment managers' conference, Rochester, N. Y., May 9, 10, and 11, 1918.  
249. Industrial health and efficiency.  
254. International labor legislation and the society of nations. Y. S. Bauer.  
255. Joint industrial councils in Great Britain.  
257. Labor legislation of 1918.  
261. Wages and hours of labor in woolen and worsted goods manufacturing, 1918.
- United States. Bureau of Mines  
Chart of properties of mine gases. G. A. Burrell.  
Coal-mine fatalities in the United States 1917. comp. by A. H. Fay.  
General information and rulings for the enforcement of the law regulating the manufacture, distribution, storage, use, or possession of explosives and their ingredients. F. S. Peabody. (Public No. 63, 65th Congress; H.R. 3932)  
War minerals investigation series.  
2. Potash situation. A. W. Stockett.
- United States. Department of Agriculture.  
Circulars.  
78. Method of sale of nitrate of soda to farmers by the United States government.  
94. Regulations for cotton warehouses.  
Farmers' bulletins.  
475. Ice houses. L. O. Corbett.  
703. Suggestions for parcel post marketing. L. B. Flohr and C. T. More.



## List of Pamphlets Indexed—Continued

### United States. Dept. of Agriculture. Farmers' bulletins.—Continued

- 865. Irrigation of alfalfa. S: Fortier.
- 888. Advice to forest planters in the Plains region. S. D. Smith.
- 904. Fire prevention and fire fighting on the farm. H. R. Tolley and A. P. Yerkes.
- 916. Successful community drying plant in Nebraska. C. W. Fugsley.
- 926. Some common disinfectants. M. Dorset.
- 930. Marketing butter and cheese by parcel post. L. B. Flohr and R. C. Potts.
- 958. Standard broom corn. E. E. Rothgeb.
- 963. Tractor experience in Illinois; a study of the farm tractor under corn-belt conditions. A. P. Yerkes and L. M. Church.
- 973. Soy bean: its culture and uses. W. J. Morse.
- 974. Clearing land. E. D. Strait.
- 984. Farm and home drying of fruits and vegetables. J. S. Caldwell.
- 992. Use of machinery in cutting corn. H. R. Tolley.
- Reports.
- 115. Distribution of softwood lumber in the Middle West; wholesale distribution. O. M. Butler.
- 116. Distribution of softwood lumber in the Middle West; retail distribution. O. M. Butler.
- United States. Federal trade commission. Cost reports of the Federal trade commission: coal; Pennsylvania—bituminous. Report of the Federal trade commission on leather and shoe industries.
- United States. Federal trade commission. Food investigation. Report on flour milling and jobbing.
- United States. Fuel administration. Bureau of Conservation, Engineering Bulletin.
  - 1. Boiler and furnace testing. R. T. Strohm.
- United States. Geological Survey. Bulletin.
  - 666-O. Our mineral supplies; bauxite and aluminum. J. M. Hill.
- United States. National advisory committee for aeronautics, Washington, D.C.
  - 2d annual report, 1916.
  - 3d annual report, 1917.
- United States. National museum, Washington, D.C. Bulletins.
  - 102, v.1. Energy resources of the United States: a field for reconstruction.
  - 102, pt.7. Natural gas: its production, service, and conservation. S: S. Wyer.
- United States. Shipping board, Division of planning and statistics, Washington, D.C. Stowage factors for ship cargoes.
- United States. Tariff Commission. Report.
  - Dyes and other coal-tar chemicals. Tariff information series.
  - 4. Button industry.
  - 5. Glass industry as affected by the war.
  - 11. Census of dyes and coal-tar chemicals, 1918.
- United States. War industries board, Washington, D. C. Price bulletin.
  - 2. International price comparisons. W. C. Mitchell, M. L. Goldsmith and F. K. Middaugh.
- University of California. Publications in engineering.
  - v. 2, no. 2. Some tests of Douglas fir after long use. A. C. Alvarez. (70c)
  - v. 2, no. 3. Some compression tests of Portland cement mortars and concrete containing various percentages of silt. A. C. Alvarez and J. R. Shields. (25c)
- University of Minnesota. Bulletin.
  - 5. Manganiferous iron ores of the Cuyuna district, Minnesota. L. Newton.
- University of Missouri. Bulletin.
  - Law series 16. Equitable servitudes in Missouri. G: L. Clark.
- University of Texas. Bulletin.
  - 1733. Water supply and sanitation.
  - 1735. Roads and pavements.
  - 1752. Boiler waters: their chemical composition, use and treatment. W. T. Read; H. P. Schoch.
  - 1755. Report on the Colorado coal field of Texas. N. F. Drake.
  - 1758. Geological conditions near Bridgeport and Chico, Wise county, Texas, with special reference to the occurrence of oil. H. Bøse.
  - 1801. Notes on publications by the faculty, 1915-1917.
  - 1827. Texas mathematic teachers' bulletin.
  - 1916:no 39. Planning of simple homes. M. H. Ellis and R. Everett.
- Washington state college, Pullman. Library bulletin.
  - Home economics series.
  - 3. Economics of textiles and clothing. (25c)

# Industrial Arts Index

A Cumulative Index to Engineering and Trade Periodicals

January, 1918—December, 1919

## Abbeys

Spanish abbeys. G. G. King. *il Am Inst Arch* J 7:399-405 S '19

## Abbreviations

Helpful suggestions for technical writers. J Elec 43:205 S 1 '19

## Aberdeen, Scotland

### Rapid transit

Zone fare in practice. W. Jackson. *il map Elec Ry J* 53:814-22 Ap 26 '19

## Ability tests

Applying army methods of selecting men for industry. P. N. Golden. *diags Am Mach* 51:409-11 Ag 28 '19

Army personnel work—a war gift to industry. *il Factory* 22:686-7 Ap '19

Army trade skill tests applicable in construction. W. D. Scott. *Eng N* 82:554-5 Mr 20 '19

Certain illogical tests of intelligence. H. P. Gillette. *Eng & Contr* 51:351-2 Ap 9 '19

Engineer officers rank first in army mental tests. *Eng N* 82:814 Ap 24 '19

How high do you stand in the rating scale? B. Barton. *Eng & Contr* 51:358-61 Ap 9 '19

Intelligence tests in industry. J. P. Lamb. *Ind Management* 58:21-3 Jl '19

Mental tests for typists and stenographers. M. P. Jaques. *Ind Management* 58:115-7 Ag '19

Mental tests in industry. R. M. Yerkes. *diags Am Inst Min E Bul* 146:405-19 F '19; *Discussion*, 148:680-1 Ap '19

Right man in the right place in the army. J. J. Swan. *Mech Eng* 41:423-8 My '19

Round pegs and square holes. *Sci Am* 120:92 F 1 '19

Selecting and training interviewers. R. W. Kelly. *Ind Management* 57:263-70 Ap '19

Simple tests for office applicants. G. W. Greenwood. *Ind Management* 57:377-8 My '19

Tests of men. *diag Chem & Met Eng* 21:185-6 Ag 15 '19

Vocabulary test of intelligence. L. M. Terman. *Eng & Contr* 51:361-2 Ap 9 '19

## Abrasion meter

Abrasion-meter. R. F. Yates. *il Sci Am S* 87:372-3 Je 14 '19

## Abrasive wheels. See Emery wheels; Grinding wheels

## Abrasives

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**American boiler manufacturers' association**

30th annual convention, Philadelphia, June 17-18. *Power* 47:928-30 Je 25 '18; *Am Soc M E J* 40:710 Ag '18

31st annual convention, Buffalo, June 23. *Power* 50:41-2 Jl 1 '19

**American brass company, Waterbury, Connecticut**

Mobilizing a brass army; how the labor problems incidental to war's demands are met. J. M. Rutenber. *il Metal Ind* 16:111-13 Mr '18

**American bureau of welding**

Research bureau organized. *Elec W* 73:860 Ap 26 '19

**American car & foundry company**

Annual report for year ended April 30, 1917. *Ry Age* 64:951 Ap 5 sec 2 '18

**American ceramic society**

Meeting, Chicago, Sept. 24. *J Ind & Eng Chem* 11:984-5 O '19; *Chem & Met Eng* 21:462-8 O 8 '19

Past, present and future of the American ceramic society. C. F. Binns. *Chem & Met Eng* 21:464-5 O 8 '19

21st annual meeting, Pittsburgh. *Chem & Met Eng* 20:180-3 F 15 '19

**American chemical society**

Advisory committee meetings. C. L. Parsons. *J Ind & Eng Chem* 11:592-3 Jo '19

Annual meeting, Cleveland, Sept. 9 to 13. *Chem & Met Eng* 19:543-4 O 1 '18; *J Ind & Eng Chem* 10:768-75 O '18

Building for the American chemical society. A. Seidell. *J Ind & Eng Chem* 11:693 Jl '19

57th meeting, Buffalo, April 7-11. *Chem & Met Eng* 20:390-5 Ap 15 '19; *J Ind & Eng Chem* 11:394-9 My '19

57th meeting, Buffalo, N.Y., April 7-11; program of papers. *J Ind & Eng Chem* 11:480-1 My '19

**American chemical society—Continued**

58th annual meeting, Philadelphia, September 2-6. *Chem & Met Eng* 21:278-307 S 15 '19; *J Ind & Eng Chem* 11:885-6, 911-30 S-O '19; *Textile World* 56:1360-1, 1506-7 S 6-13 '19

58th annual meeting, Philadelphia, Pa., Sept. 4: contributions from the dye section. *J Ind & Eng Chem* 11:1071-83 N '19

Industrial excursions, Philadelphia, Sept. 2-6. *Chem & Met Eng* 21:488-502 O 15 '19

Meeting of the rubber division, Philadelphia. A. H. King. *Chem & Met Eng* 21:429-31 O 1 '19

Our opportunity. B. C. Hesse. *J Ind & Eng Chem* 11:341-4 Ap '19

Our preparation for after the war. B. C. Hesse. *J Ind & Eng Chem* 10:881-7 N '18

Phases of reconstruction. *Sci Am* 120:58 Ja 18 '19

Report of omnibus committee. A. D. Little. *J Ind & Eng Chem* 11:410-13 My '19

Reports for the year 1917. *Am Chem Soc J* 40:sup15-23 F '18

Statistics of chemical imports in preparation. *Chem & Met Eng* 19:367 S 24 '18

**American chemical society news service**

Laboratory and newspaper shop. J. W. Harrington. *J Ind & Eng Chem* 11:164-5 F '19

**American concrete institute**

Annual convention, Atlantic City, N. J., June 27-29; abstracts of papers. *Eng N* 81:571-Jl 4 '18; *Ity Age* 65:17-21 Jl 5 '18; *Concrete* 13:51-5 Ag '18

15th annual convention, Atlantic City, June 27-28. *Am Arch* 116:57-60 Jl 9 '19; *Arch Forum* 31:53-4 Ag '19; *Munic J* 47:99 Ag 9 '19

**American cotton manufacturers association**

Business meeting, May 3. *Textile World* 53:5144+ My 4 '18

Combined gathering of cotton manufacturers. *Textile World* 53:5137-40 F My 4 '18

New president and governors; portraits. *Textile World* 53:5135 My 4 '18

22d annual convention, Atlantic City, *Textile World* 55:3274-6 J., 3287 J. My 31 '19

**American drop forge association**

Joint meeting with Drop forge supply association, Buffalo, June 20-22. *Automotive Ind* 38:1270-14 Je 27 '18; *Iron Age* 101:1650-4 Je 27 '18; *Iron Tr R* 62:1623-4 Je 27 '18

6th annual convention, Pittsburgh, Penn., June 12-14. *Am Mach* 50:1247-50 Je 26 '19; *Iron Age* 103:1645-7 Je 19 '19

**American dyes institute**

List of members. *Color Tr J* 5:1 Jl '19

**American dyestuff manufacturers' association**  
Annual meeting, New York. *Textile World* 54:2968 J D 14 '18

Board of governors elects officers, executes the certificate of incorporation, and adopts constitution and by-laws. *J Ind & Eng Chem* 10:402 My '18

Dye association adopts constitution and elects officers. *Textile World* 53:4559 Ap 6 '18

Dyestuff association membership. *Textile World* 53:4018 Mr 2 '18

Dyestuff association officially organized. *Met & Chem Eng* 18:479 My 1 '18

Dyestuff assoc projected by important interests. *Textile World* 53:3151-3 Jn 26 '18; *J Ind & Eng Chem* 10:231-3 Mr '18

Dyestuff association started. *Textile World* 53:4132 Mr 9 '18

Dyestuff manufacturers perfect organization. *Met & Chem Eng* 18:289 Mr 15 '18

**American electric railway accountants' association**

Convention, Atlantic City, Oct. 7-8. *Elec Ry J* 54:sup85-6 O 11 '19

**American electric railway association**

Annual report, 1917. *Elec Ry J* 51:374 F 23 '18

Mid-year meeting, New York, March 14. *Elec Ry J* 53:516-21 Mr 15 '19

New York conference, Nov. 1. *Elec Ry J* 52:789-97 N 2 '18

38th annual convention, Atlantic City, Oct. 6-10. *Elec Ry J* 54:sup43-52 O 11 '19

Value of a company section. H. L. Budd. *Elec Ry J* 50:1038 D 8 '17

**Committee of 100**

Committee of one hundred. *Elec Ry J* 54:32 Jl 5 '19

Report of the Committee of one hundred. *Elec Ry J* 54:sup50-2 O 11 '19

**War board**

Board issues bulletins. *Elec Ry J* 51:1018 My 25 '18

Edwin C. Fisher, head of war board traffic bureau. *Elec Ry J* 51:256 F 2 '18

Electric railway war board notes. *Elec Ry J* 50:1080 D 15 '17

Interurban rates, transportation of draft men to cantonments and other topics discussed. *Elec Ry J* 51:1157 Je 15 '18

List of electric railway war board bulletins. *Elec Ry J* 52:895 N 16 '18

Problems of the industry and work of electric railway war board. L. S. Sterna. *Elec Ry J* 51:653 Ap 6 '18

Traffic bureau organized. *Elec Ry J* 51:139 Jn 19 '18

War board considers many committee reports. *Elec Ry J* 50:1164 D 29 '17

War board presents first annual report. *Elec Ry J* 52:781 8 N 2 '18

War board raises jitney question again. *Elec Ry J* 52:620 O 5 '18

War board sessions. *Elec Ry J* 51:326, 715, 980 Mr 16, Ap 13, My 18 '18

What the war board is doing for the industry. P. H. Gadsden. *Elec Ry J* 52:831 3 N 9 '18

Work. *Ry R* 63:239 31 Jl 6 '18

**American electric railway claims association**

Convention, Atlantic City, Oct. 6-9. *Elec Ry J* 54:718-25 O 11 '19

**American electric railway engineering association**

Convention, Atlantic City, Oct. 6-9. *Elec Ry J* 54:sup69 83 O 11 '19

Engineering association committee appointments. *Elec Ry J* 53:609 10 Mr 22 '19

**American electric railway manufacturers' association**

Manufacturers association votes to disband. *Elec Ry J* 54:sup66 7 O 11 '19

**American electric railway transportation & traffic association**

10th annual convention, Atlantic City, Oct. 6. *Elec Ry J* 54:sup63 68 O 11 '19

**American electrical society**

Old-time national electrical society with head quarters in Chicago. W. E. Keith. *Elec R* 72:476 7 Mr 9 '18

**American electrochemical society**

Electrochemical industry essential to winning the war. C. G. Schluenderberg. *Met & Chem Eng* 18:447 My 1 '18

Full meeting, Atlantic City, Sept. 30 Oct. 2. *Chem & Met Eng* 19:609 10 O 15 '18; *Iron Age* 102:826 7 O 10 '18

Southern convention. *Met & Chem Eng* 18:500-12 My 15 '18

34th general meeting, Atlantic City, N. J., Sept. 30 Oct. 2, 1918. J. W. Richards. *J Ind & Eng Chem* 10:941 5 N '18

35th general meeting, New York City, April 3-5. *Iron Age* 103:246 6 Ap 10 '19; *Chem & Met Eng* 20:379 8 Ap 15 '19

35th general meeting, New York City, April 3-5. J. W. Richards. *J Ind & Eng Chem* 11:183-4 My '19

36th general meeting, Chicago, Sept. 24-26. *Elec R* 75:521 27 '19; *Eng & Min J* 109:557 8 27 '19

**American electroplaters' society**

Closer relations between employer and employees in the work of the American electroplaters' society. W. C. Gold. *Metal Ind* 17:313 15 Jl '19

Convention; a description of the metal plating and finishing shops of Philadelphia. G. Goodfellow. *Metal Ind* 17:247-55 Je '19

5th annual convention, St. Louis, July 5-7. H. M. Edmunds. *Metal Ind* 15:284-9 Jl '17

6th annual meeting, Detroit, Mich., July 1-3, 1918. *Metal Ind* 16:301-2, 379 Jl Ag '18

7th annual convention, Philadelphia, July 1-3. L. J. Krum. *Metal Ind* 17:307-10 Jl '19

**American engineering standards committee**

- Engineering and industrial standardization. C. A. Adams. Power 49:337 Mr 4 '19
- Engineering standards committee proposes new constitution. Eng N 83:575-6 S 18 '19
- Establishing American engineering standards. J Elec 43:164-5 Ag 15 '19; Same cond. Sci Am 121:157+ Ag 16 '19
- New association plan. Elec W 73:857 Ap 26 '19
- Organization. Eng & Min J 107:1091-2 Je 21 '19
- Organization and procedure of A.E.S. committee explained. Elec Ry J 53:407 Mr 1 '19
- Proposed constitution for standards committee. Eng N 81:76 J1 11 '18
- Proposed reorganization; constitution. Mech Eng 41:638-9 J1 '19
- Reorganization of the Engineering standards committee. E: B. Rosa. Eng N 82:861-2, 916-18 My 1-8 '19; Excerpts. Elec Ry J 53:859-60 My 3 '19
- Revision of constitution of organization now proposed to carry on the large work of the committee originally suggested. C. B. Le Page. Elec W 73:1233 Je 7 '19
- Statement issued by the association outlining the scope of its proposed activities and stating its reasons why such an association is necessary. Power 49:930-1 Je 17 '19; Same. Elec R 74:1001-2 Je 14 '19; Same cond. Elec Ry J 53:1100 Je 7 '19; Excerpts. Elec W 73:1233 Je 7 '19; Excerpts. Eng N 82:1154 Je 12 '19; Excerpts. Iron Age 103:1585 Je 12 '19; Excerpts. Mach 25:1072 J1 '19

**American foundrymen's association**

- Convention, Philadelphia, Sept. 29-Oct. 3. G: B. Goodfellow. Metal Ind 17:405-12 S '19
- Foundrymen's convention. R. T. Elmes. II plans Metal Ind 15:373-7, 417-28 S-O '17
- Quaker city, American foundrymen's association's cradle. Iron Tr R 65:sup100-5 S 25 '19
- 23d annual convention, Milwaukee, Oct. 7-11. Iron Age 102:955-65 O 17 '18; Iron Tr R 63:907-12 O 17 '18; Metal Ind 16:445-58 O '18; Foundry 46:501-11 N '18
- 24th annual convention, Philadelphia, Sept. 29-Oct. 3. Foundry 47:619-40, 717-25 S 15, O 15 '19; Iron Age 104:712, 833-48, 1074-7 S 11, 25, N 27 '19; Iron Tr R 65:821-4, 888, 983-94 S 25-O 9 '19; Metal Ind 17:477-81 N '19
- War service committee. Iron Age 101:339 Ja 31 '18

**American fuse manufacturers' association**

- Fuse-making contractors organize. Am Mach 48:599 Ap 4 '18

**American gas association**

- Association to be organized June 6. Gas Age 41:423-4, 525-6 My 1, Je 1 '18
- Carbonization committee report shows distinct trend of gas industry towards by-product oven. Am Gas Eng J 111:396-402 (- O 25 '19)
- Consolidation of the technical and commercial societies of the gas industry. Gas Age 41:545-51 Je 15 '18
- 1st annual convention, New York city, October 13-18. Am Gas Eng J 111:341-4 (- O 18 '19; Gas Age 44:371-82 N 1 '19
- Manufacturers section of A.G.A. W. W. Barnes. chart Gas Age 43:326 Mr 15 '19
- March conference of American gas association demonstrates complete welding of interests of the two former national associations, New York. Am Gas Eng J 110:249-50 Mr 22 '19; Gas Age 43:301-2 Mr 15 '19
- New association launched, June 6. Am Gas Eng J 108:549-50 Je 8 '18
- Policy of the association. G: B. Cortelyou. Gas Age 41:551 Je 45 '18
- Program for 1919. Gas Age 43:29-30 Ja 1 '19
- Report of industrial fuel committee. Am Gas Eng J 110:203-4 Mr 1 '19
- Scope of the advertising section of the American gas association. Am Gas Eng J 111:377-8 O 18 '19
- Secretary of American gas association should be a man well versed in the theory and practice of gas manufacture and use. Am Gas Eng J 111:54-5 J1 19 '19

**American gas institute (now American gas association)**

- Plans for amalgamation of the American gas institute and the National commercial gas association rapidly approaching completion. Am Gas Eng J 108:235-6, 365-9 Mr 9, Ap 20 '18; Gas Age 41:423-4 My 1 '18
- American gear manufacturers' association
- Aims of the association. F. W. Sinram. Am Mach 50:885-6 My 8 '19
- Annual meeting, Cleveland, April 14-16. Iron Age 103:1083-5 Ap 24 '19; Am Mach 50:872 My 1 '19; Mach 25:810-11 My '19
- Gear makers adopt standard contract and set design standards for composition and bevel gears. Automotive Ind 41:830-1+ O 23 '19
- Gear makers hold successful meeting. P. M. Heldt. Automotive Ind 40:834-5 Ap 17 '19
- 2d annual meeting, White Sulphur Springs, W. Va., April 18-20. Iron Age 101:1080-3 Ap 25 '18; Elec R 72:761 My 4 '18
- Semi-annual meeting, Syracuse, N.Y., Sept. 19-21. Iron Age 102:750-2 S 26 '18; Iron Tr R 63:730-1 S 26 '18; Automotive Ind 39:527-9 S 26 '18; Elec R 73:543 O 5 '18; Mach 25:161-2 O '18

**American hardwood manufacturers' association**

- Adoption of the principles to be embodied in the inspection rules to be drawn up and applied by the association. Am Lumberman 2277:53 Ja 4 '19
- 1st annual convention. Am Lumberman 2275:36-42 D 21 '18
- Hardwood associations to unite as one. Am Lumberman 2267:35+ O 26 '18
- Hardwood interests form new organization. Am Lumberman 2228:40-2 Ja 26 '18; Iron Tr R 62:173 Ja 10 '18
- New hardwood inspection rules drafted. Am Lumberman 2280:57 Ja 25 '19
- Semiannual meeting, Memphis, Tenn., May 25. Am Lumberman 2246:54-6 Jo 1 '18

**American hide & leather company**

- Report for the fiscal year ended June 30, 1918. Ry Age 65:899-900 N 15 sec 2 '18

**American institute of accountants**

- Annual meeting. J Account 26:296-9 O '18
- Annual meeting, Cincinnati, Ohio, September 16-17. J Account 28:290-6 O 19
- Board of examiners; November, 1917, examination questions. J Account 24:413-23 D '17; Answers. S. Walton and H. A. Finney. 25:64-78, 140-8 Ja-F '18
- Board of examiners; May, 1918, examinations. J Account 25:401-12 Je '18; Answers. S. Walton and H. A. Finney. 26:143-56, 222-33 Ag-S '18

**American institute of architects**

- Address of president. J: L. Mauran. Am Arch 113:555-8 My 8 '18
- Democratizing the institute. Am Arch 115:515-16 Ap 9 '19
- Federating the building industry. T: R. Kimball. Am Arch 113:719 My 29 '18
- Fellows and fellowships. Am Inst Arch J 7:51-9 F '19
- 51st annual convention, Philadelphia, April 24-26. Am Inst Arch J 6:190-8 Ap '18; Am Arch 113:551-64 My 8 '18
- 52nd annual convention, Nashville, Tenn., April 30-May 2. Am Arch 115:633-41, 647, 665-70 My 7-14 '19; Am Inst Arch J 7:192-8 My '19; Arch Forum 30:123-6 My '19
- Illinois chapter A. I. A. elects new officers; Geo. W. Maher succeeds D. H. Burnham as president. Am Arch 114:403-4 O 2 '18
- National organization. Am Arch 112:431-2 D 12 '17; Discussion. 113:42-3, 89-91, 119-20, 155-8, 471-6, 717-18 Ja 9, 23-F 6, Ap 17, My 29 '18
- National organization of architects; a defense. R. C. Sturges. Am Arch 113:349-51 Mr 20 '18
- Record of the institute's war service. J: L. Mauran. Am Inst Arch J 5:641-3 D '17

**Post-war committee**

- Inter-professional conference. Am Inst Arch J 7:193-4 N '19
- Post-war committee on architectural practice. Am Inst Arch J 7:153-8 Ap '19



American Institute of architects—Post-war committee—*Continued*  
 Post-war committee—some opinions. Am Inst Arch J 7:453-8 O '19  
 Preliminary conclusions. C: H. Whitaker. Am Inst Arch J 7:390-5 S '19  
 Review of the Post-war committee's activities at the Nashville convention. R. D. Kohn. Am Arch 115:735-8 My '19

American Institute of chemical engineers  
 10th annual meeting. St Louis, Dec. 5-8. Met & Chem Eng 17:684 D 15 '17; J Ind & Eng Chem 10:77-9 Ja '18  
 10th semi-annual meeting. Gorham, N. H., June 19-22. J Chem & Met Eng 19:4-8 J1 '18; J Ind & Eng Chem 10:651-3 Ag '18  
 11th annual meeting. Chicago, Jan. 15-18. Chem & Met Eng 20:115-18 F '19; J Ind & Eng Chem 11:162-4 F '19  
 11th semi-annual meeting. Boston and Cambridge, June 18-21. Chem & Met Eng 21:5-15 J1 '19; J Ind & Eng Chem 11:789-91 Ag '19

American Institute of electrical engineers  
 A. E. E. section. Elec R 73:252 Ag 17 '18  
 A. I. E. E. development committee report. G. T. Southgate. Elec W 74:703 S 27 '19  
 Annual reports of technical committees. Am Inst E E Pro 38:901-5 J1 '19  
 Appointments to the A. I. E. E. committees. Elec W 74:373 Ag 16 '19  
 Closing sessions of A. I. E. E. convention embrace many subjects. Elec R 75:67-9 J1 12 '19  
 Comments on proposed A. I. E. E. changes. Elec W 74:298-300, 354-7 Ag 9-16 '19  
 Committee reports presented June, 1918. Am Inst E E Pro 37:935-76 Ag '18  
 Committees for the year beginning August 1, 1918. Elec R 73:328 Ag 31 '18  
 Enhancing the prestige of the Institute. C: P. Steinmetz. Elec W 74:243-6 Ag 2 '19  
 How A. I. E. E. changes may lessen scientists' support. J. B. Whitehead. Elec W 74:577-8 S 13 '19  
 How can A. I. E. E. increase its revenue? Elec W 74:522-3 S 6 '19  
 Joint meeting with the Association of Iron and steel electrical engineers, Cleveland, O., March 8. Elec R 72:457-8 Mr 16 '18; Elec W 71:680-1 Mr 16 '18  
 Midwinter convention, New York, Feb. 19-21. Elec R 74:350-3 Mr 1 '19; Elec W 73:421-4 Mr 1 '19; Power 49:338-9 Mr 4 '19  
 Proposed changes in A. I. E. E. activities. Power 50:276-7 Ag 12 '19  
 Proposed changes in A. I. E. E. activities; issuing of engineering periodical instead of proceedings. Elec W 74:18-19 J1 5 '19  
 Report of committee on development. A. I. E. E. Elec W 74:374-8 Ag 16 '19; Same abr. Am Inst E E Pro 38:337-46 S '19 [see '11]; Same cont. Elec R 75:322-4 Ag 23 '19; Excerpt. J Elec 43:231-2 S 1 '19  
 Report of the board of directors for fiscal year ending April 30, 1918. Am Inst E E Pro 37:717-38 Je '18  
 Shall Institute practices be amended? Elec W 74:466-7 Ag 30 '19  
 6th annual midwinter convention, New York, Feb. 15-16. Elec R 73:342-3 F 23 '18; Elec Ry J 51:373 F 23 '18; Elec W 71:424-5 F 23 '18; Power 47:312 F 26 '18  
 34th annual business meeting, New York city, May 17. Elec R 72:373 My 25 '18; Am Inst E E Pro 37:sup186 Je '18  
 34th annual convention; abstracts of papers. J1 diag. Elec R 72:1080-3 Je 29 '18; Elec Ry J 51:1229-31 Je 29 '18  
 34th annual convention, Atlantic City, N. J., June 26-28. Elec R 72:1089-9; 73:14-17 Je 28-J1 6 '18; Elec W 71:1374-5; 72:28-31 Je 29-J1 6 '18; Power 48:66-8 J '18; Munic J 45: 61+ J1 20 '18; Am Inst E E Pro 37:sup239-44 Ag '18  
 35th annual convention, Lake Placid, New York, June 24-27. Elec R 75:7-12 J1 5 '19; Elec W 73:1333-30; 74:16-17 Je 28-J1 5 '19; Power 50:39-40 J1 1 '19  
 335th meeting, New York, Dec. 14; with abstracts of papers. Elec W 70:1208 D 22 '17

342nd meeting, Philadelphia, Dec. 13. Elec R 73:972-4 D 21 '18  
 348th meeting, Boston, March 14. Elec W 73: 592-5 Mr 22 '19  
 What are the important functions of the A. I. E. E.? W: Arthur. Elec W 74:410-11 Ag 23 '19

American Institute of metals  
 Foundrymen's convention. R. T. Elmes. J1 plans Metal Ind 15:373-7, 417-28 S-O '17  
 Sessions of the Institute of metals. Iron Age 103:566-7 F 27 '19  
 To join the American Institute of mining engineers. Metal Ind 16:223-4 My '18; Abstract. Iron Tr R 62:1052 Ap 25 '18

American Institute of mining and metallurgical engineers (formerly American Institute of mining engineers)  
 Address of president to local sections. S. J. Jennings. Am Inst Min 13 Bul 137:sup8-13 My '18  
 American Institute of metals to join the American Institute of mining engineers. Metal Ind 16:223-4 My '18; Abstract. Iron Tr R 62:1052 Ap 25 '18  
 A. I. M. E. in Colorado. Eng & Min J 106:377 Ag 31 '18  
 Annual meeting of the Institute of metals division, Philadelphia, Sept. 29-Oct. 3. Foundry 47:610-24, 744-5 S 15, O 15 '19; Iron Tr R 65:821-4 S 25 '19; Chem & Met Eng 21: 550-6 O 29 '19  
 Board of directors. A. I. M. E.; portraits. Eng & Min J 108:469-71 S 13 '19  
 Board of directors; portraits. Eng & Min J 106:378-80 Ag 31 '18  
 Coal has leading place in session of A. I. M. E. R. D. Hall. Coal Age 16:606-10 O 9 '19  
 Consider industrial relations; remarks on meeting of A. I. M. E. R. D. Hall. Coal Age 13:413-14, 458-9, 499-500, 544-5 Mr 2-23 '18  
 Institute and the war. B. Stoughton. J1 Eng & Min J 106:375-7 Ag 31 '18  
 Meeting of the San Francisco section, July 22. Eng & Min J 108:193 Ag 2 '19  
 Milwaukee meeting, Oct. 7-12. J. W. Richards. J Ind & Eng Chem 10:945-6 N '18  
 Officers of mining engineering societies. Eng & Min J 107:486-8 Mr 15 '19  
 116th annual meeting, New York, Feb. 18-21. Iron Age 101:554-9 F 28 '18; Iron Tr R 62: 548-52 F 28 '18; Eng & Min J 105:391-2, 426-9 F 23 Mr 2 '18; Met & Chem Eng 18:227-31 Mr 1 '18  
 117th meeting, Denver and Colorado Springs, Sept. 2-5. Chem & Met Eng 19: 278-86 S 15 '18; Eng & Min J 106:501 S 14 '18; Am Soc M E J 40:858 O '18  
 118th meeting of the Institute of metals division, Milwaukee, Oct. 8. Foundry 46:530-1 N '18  
 119th annual meeting, New York, Feb. 17-20. Chem & Met Eng 20:208-15 Mr 1 '19; Eng & Min J 107:373-4, 414-15 F 22 Mr 1 '19; Iron Age 103:568-6 F 27 '19; Iron Tr R 64:578-9 F 27 '19; Metal Ind 17:111-12 Mr '19  
 120th meeting, Chicago, Sept. 22-26. Eng & Min J 108:328-9, 304-6, 555 Ag 23-30, S 27 '19; Chem & Met Eng 21:458-61 O 8 '19; Iron Tr R 65:900-1 O 2 '19; Iron Age 104:1058-61 N 27 '19; Metal Ind 17:477-81 N '19  
 Reports for the year 1917. Am Inst Min 10 Bul 134:sup9-24 F '18  
 Session on milling and industrial organization, Chicago, September 22. Eng & Min J 108:588 O 4 '19  
 Some facts and figures about the A. I. M. E. J1 Eng & Min J 108:433-9 S 13 '19  
 23d annual convention, Milwaukee, Oct. 7-11. Iron Age 102:855-65 O 17 '18; Metal Ind 16: 445-58 O '18; Foundry 46:501-11 N '18

American Iron and Steel Institute  
 New committee for scrap. Iron Age 101:360 Ja 31 '18  
 New members. Iron Age 101:1532 Je 15 '18  
 16th general meeting, New York city, Oct. 24. Iron Tr R 65:1154-8 O 30 '19  
 Stricter control over ferro alloys: Institute to act as clearing agent. Iron Tr R 62:439-40 F 14 '18  
 War writes steel's brightest page. E. C. Kreutborg. Iron Tr R 64:43-51 Ja 2 '19

- American iron, steel and heavy hardware association  
Annual convention, Atlantic City, N.J. Iron Age 101:1394-6 My 30 '18
- American locomotive company  
Annual report for fiscal year ended June 30, 1918. Ry Age 65:897 N 15 sec 2 '18
- American lumber congress  
American lumber congress considers the industry's problems. Am Lumberman 2292: 56-64 Ap 19 '19  
Proceedings. Am Lumberman 2292:1, 47-67 Ap 19 '19
- American machinist (periodical)  
Anent our fortieth birthday. W. D. Forbes. Am Mach 48:20-1 Ja 3 '18  
Value of the American machinist as a college textbook. J. A. De Turk. Am Mach 48:531-2 Mr 28 '18
- American manufacturers export association  
Exporters in drive for world trade. Iron Tr R 63:1078-9 N 7 '18  
10th annual convention, New York, Oct. 16-17. Ry Age 67:701-2 O 3 '19
- American metric association  
2d meeting, Pittsburgh, Pa., Dec. 28-29, 1917. J Ind & Eng Chem 10:154 F '18
- American mining congress  
American mining congress. B. Wells. Eng & Min J 107:489-90 Mr 15 '19
- American oak manufacturers' association. See American hardwood manufacturers' association
- American paper and pulp association  
Paper associations joint convention, New York, Feb. 3-6. Chem & Met Eng 20:184-5 F 15 '19
- American petroleum institute  
Natural gas and petroleum wartime activities. C. C. Smith. Gas Age 44:90-2 Ag 1 '19
- American photoengravers' association  
23d annual convention, Buffalo, June 19-21. S. H. Morgan. Inland Pir 63:415-16 Jl '19
- American pig iron association  
Annual meeting, Pittsburgh, Feb. 7. Iron Age 101:472 F 14 '18
- American railroad association  
Atlantic City conventions. Ry Mech Eng 93: 185-7 Ap '19  
Developments in American railroad association. Ry Age 66:541-2 Mr 7 '19  
New section of American railroad association; superseding the American storekeepers' association. Ry Mech Eng 93:296 Je '19  
Personnel of general committees. Ry R 64: 400 Mr 15 '19  
Reorganization of the American railway association taking in several auxiliary associations. Ry Age 66:194-6 Ja 17 '19; Same. Ry R 64:86-9 Ja 18 '19
- Mechanical section  
1st annual meeting, Atlantic City, June 18-25. Elec Ry J 53:1213-16, 1268-70 Je 21-28 '19; Ry R 64:922-5+, 977-85, 994-1000 Je 21-28 '19
- Mechanical section of American railroad association; rules of order. Ry Age 66:535-7 Mr 7 '19; Ry R 64:345-6 Mr 8 '19
- Signal division  
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- Equipment. diag plan Motor Age 36:24-5 S 18 '19

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- Ideal service station. B. M. Ikert. diag plan Motor Age 36:7-9 S 11 '19

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- Knowledge of car spelled success; Motor car service co. il Motor Age 35:20-1 Je 12 '19

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- Labor-saving equipment for handling concrete materials. il Eng & Contr 51:496 My 7 '19
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- Concrete mixer uses either gasoline or kerosene as fuel. il Eng & Contr 49:443 My 1 '18
- Ideal Cincinnati mixers. il Munic J 43:572-3 D 6 '17
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Cement bags tobogganed down roller chutes. *Eng N 81:145-6 Jl 18 '18*

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- Operation of a silo stave factory. *il Concrete 12:165-6 My '18*
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- Change the title of county surveyor to managing engineer or county manager. Eng & Contr 50:137 Ag 7 '18

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Couplers. See Car couplings; Couplings

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Home-made dredge reduces cost of canal construction. *il Eng N* 79:1147-8 D 20 '17

Large sand digger has main screen on deck. *il diags Eng N* 80:602-4 Mr 28 '18

Launching Yuba no. 17 dredge in California. *il Eng & Min J* 105:374-5 F 23 '18

Move 180-ton dredge  $4\frac{1}{2}$  miles through city streets. *il Eng N* 81:145 Jl 18 '18

Operating a hydraulic dredge under difficulties. A. S. Fry. *il diags Eng N* 82:410-14 F 27 '19

Reclaiming coal from the Susquehanna river by suction dredges. *il Eng & Contr* 49:611 Je 19 '18

Repairing gold dredges by use of arc welders. H. G. Newton. *il Elec W* 74:26 Jl 5 '19

Yuba all-steel placer dredge. L: H. Eddy. *il Eng & Min J* 107:752-3 Ap 26 '19

Yuba no. 17 all-steel dredge. L. H. Eddy. *il Eng & Min J* 106:299-301 Ag 17 '18

*See also* Excavating machinery

**Dredging**

Clamshell bucket digs thirty cubic yards per dip. *il Eng N* 83:279-80 Ag 7 '19

Drop shafts sunk through buried tree trunks by dredging; foundation for large Kansas City power station. *il Eng N* 81:485-8 S 12 '18

Five and a half million yards dredged by large fleet at Hog Island. *Eng N* 81:454-5 S 5 '18

Handling river coal at Harrisburg. H: J. Edsall. *il Coal Age* 15:564-7 Mr 27 '19

Material under piers removed by jetting with hydraulic dredge. R. W. Beuttenmuller. *il diag Eng N* 83:774 O 23 '19

Modern suction dredging; pumping no longer restricted to liquids. C: E. Fowler. *il Sci Am* 118:356+ Ap 20 '18

Operating a hydraulic dredge under difficulties. A. S. Fry. *il diags Eng N* 82:410-14 F 27 '19

Sweep boat and drag-line dredge rigged up on canal job. *il Eng N* 80:92-3 Ja 10 '18

Using electric power to dredge a relocated river channel. J. H. Walter. *Eng N* 81:723-5 O 17 '18

*See also* Excavation; Gold dredging; Tin dredging

**Dress.** *See* Clothing

**Dress fabric buyers, Jobbers' association of.** *See* Jobbers' association of dress fabric buyers

**Dress goods**

Dress goods year 1918 disappointing. *Textile World* 55:388-9 Ja 11 '19

Few novelties in London market. J. A. Hunter. *il Textile World* 56:1651+ S 20 '19

**Dried apples.** *See* Apples, Dried

**Dried fruit.** *See* Fruit, Dried

Drifters. See Fishing boats

### Drifts (tool)

Making and using drifts. H. F. Pusep. diags  
Am Mach 51:757-60 O 23 '19

Drill jigs. See Jigs

### Drilling and boring (earth and rocks)

Application of air drills to mine sampling.  
J. H. Eggers. Eng & Min J 105:355-60 Ag  
30 '19

Diamond-drill troubles. M. C. Milton. diag  
Eng & Min J 107:450-1 Mr 8 '19

Diamond drilling near Chemainus, B.C. Coal  
Age 14:856 N 7 '15

Drill mounting for flat hole work. il Eng &  
Contr 4:205 F 20 '15

Experiences with a borehole. A. W. Hesse  
and K. M. Quickel. Coal Age 13:1146-7 Je  
22 '18

Hand drilling with jump-drills. L. D. Daven-  
port. diags Eng & Contr 49:615-16 Je 19 '18

New machine for boring pole holes. il Elec R  
72:779-80 My 4 '18

Oil-well drilling by electricity proves econom-  
ical. J. G. Dickinson. Elec R 75:916-17  
N 29 '19

Old diamond-drill hole as cableway for new  
churn-drill hole. R. H. Poston. diags Eng &  
Min J 108:398 S 6 '19

Rotary method of well drilling. A. G. Wolf.  
il diags plan Eng & Min J 108:171-5 Ag  
2 '19; Same. Sci Am S 88:248-50 O 25 '19

Sealing formations by slime-laden fluid. S. S.  
Langley. diags Eng & Min J 108:268-71 Ag  
16 '19

Standardization of mining methods—standard  
machine-drill rounds. C. A. Mitke. diags  
plan Eng & Min J 106:857-61 N 16 '18

Water jack-hammer contest at Tonopah.  
J. A. Carpenter. il Eng & Min J 108:240-1  
Ag 9 '19

Wedging diamond-drill holes. O. Hall and  
V. P. Row. diags Am Inst Min Bul 153:1597-  
1602 S '19. Same abr. Eng & Contr 52:428-9  
O 15 '19; Discussion. Am Inst Min Bul 155:  
3038-9 N '19

See also Artesian wells; Rock drills; Shaft  
sinking; Wells

### Drilling and boring (metal working, etc.)

Bar for boring a chamber. O. E. Charles.  
diags Am Mach 49:256 Ag 8 '18

Bending and drilling tubes, angles and flat  
sections. F. A. Stanley. il diags plan Am  
Mach 48:697-701 Ap 25 '18

Boring a 4-ft. hole in an 18-ft. ship casting.  
H. G. McLean. il diags Am Mach 48:211 Ja  
31 '18

Boring a hole around a corner. G. A. Mac-  
Gregor. diags Am Mach 48:328 F 21 '18

Boring and reaming ball bearing housings on  
a turret lathe. P. S. Thomas. diags Mach  
25:66 S '18

Boring and reaming on the drill press. V. T.  
Kropidowski. diags Ry R 62:276-7 F 23 '18

Boring attachment for lathe. C. W. Wilkinson.  
il diags Mach 24:739 Ap '18

Boring spiders for paper mill cylinders.  
R. P. Deane. diags Am Mach 51:304 Ag  
14 '19

Boring taper holes. W. B. Bennett. diag Am  
Mach 48:391 F 28 '18

Boring with an improvised rig. M. E. Hoag. il  
Am Mach 51:583-4 S 18 '19

Centering shell forgings on a drilling ma-  
chine. J. Homewood. diag Mach 25:63-4 S  
'18

Chamfering tool. R. E. Goss. diags Am Mach  
48:675-6 Ap 18 '18

Deep boring operation on a lathe. diag Mach  
25:1175-6 Ag '19

Device to drill a hole from the inside of a  
boiler or tank. J. A. Lucas. diag Coal Age  
14:891 N 14 '18

Drill for square holes. diags Marine R 49:302  
Je '19

Drilling bakelite at high speed. il Mach 24:  
1024 J1 '18

Drilling closely spaced holes. il Mach 24:886  
Je '18

Drilling deep holes of small diameter. W. S.  
Rowell. Mach 26:241 N '19

Drilling, facing, and tapping studs. il Mach  
24:809 My '18

Drilling holes for hub plate studs. diags Ry  
Mech Eng 93:259-60 My '19

Drilling metal by hand power. J. Lewis. diag  
Power 47:93 Ja 15 '18

Drilling records. Mach 25:1184 Ag '19

Drilling square holes in metal. A. E. Rhodes.  
diags Marine R 49:485 O '19

Dudgeon system of precision boring. il diags  
plan Mach 25:803-5 My '19

Efficiency points in boring fixtures. L. M.  
Curry. diags Mach 24:542 F '18

Experiment in employing the blind. D. Wolf.  
Ind Management 57:105-7 F '19

Intensive production on drilling machines.  
E. K. Hammond. il diags Mach 24:914-21,  
1030-4 Je-J1 '18

Inverted drilling of armature shafts. diag  
Mach 24:630 Mr '18

Machine lap for taper holes. J. G. Rock. diags  
Am Mach 48:760 My 2 '18

Machining a long rectangular hole. F. H.  
Jennings. diags Am Mach 48:249 F 7 '18

Machining tractor wheel hubs on a drilling  
machine. il Am Mach 48:634 Ap 11 '18

Making boring bars for big guns. M. E. Hoag.  
il Am Mach 49:987-8 N 28 '18

Making cylinders for destroyers. il Am Mach  
49:348 Ag 22 '18

Modern drilling practice. E. K. Hammond. il  
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'18

One-way bow drill. J. A. Lucas. diag Am  
Mach 50:19 Ja 2 '19

Portable electric drilling machines used in  
multiple. J. Dougherty. il Am Mach 51:  
788 O 30 '19

Porter-Cable differential-cross centering ma-  
chine. il Am Mach 50:867-8 My 1 '19

Radius-cutting boring bar. A. S. Mill. diags  
Am Mach 48:201 Ja 31 '18

Re-boring a Corliss valve-bonnet. A. M.  
Stiles. il diags Am Mach 50:951-2 My 15  
'19

Recessing tool for gasoline engine cylinders.  
C. C. Spreen. diags Mach 24:741-2 Ap '18

Rig for drilling holes in ceiling. P. P. Fenaux.  
diags Power 48:465-6 S 24 '18

Simple corner drilling device. J. Gardner.  
diags Am Mach 50:952 My 15 '19

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diags Am Mach 46:382 Mr 1 '17; Discussion.  
47:602-3, 1052 O 4, D 13 '17

Small adjustable boring tool. diags Am Mach  
48:886 My 23 '18

Spacing mechanism for drilled holes. il Iron  
Age 101:133 Ja 10 '18

Speeds and feeds for drilling. E. K. Hammond.  
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Time studies for rate setting on Gisholt bor-  
ing mills. D. V. Merrick. il diags Ind Man-  
agement 56:34-41, 129-33 J1-Ag '18

Utilizing a four-spindle boring mill to rehabili-  
tate 3000 motors. il Elec Ry J 52:424 S 7 '18

Weight of metal removed from machine  
members by drilling. W. Thompson. chart  
Mach 26:35 S '19

Wigglers and their uses. H. F. Pusep. diags  
Am Mach 49:559-60 S 26 '18

See also Broaching; Machine shop practice

### Drilling and boring machinery

Adjustable bar for boring taper holes. A. Ta-  
densz. diags Am Mach 48:847 My 16 '18

Advantages of electricity for operating port-  
able drills shown. Elec R 75:848 Ag 30 '19

Amalgamated gun-boring machines. il Am  
Mach 48:430-2 Mr 7 '18

American radial drilling machines. il Am  
Mach 50:915-16 My 8 '19

Arch bar drilling machine. il Ry Mech Eng  
92:359-60 Je '18

Arnold electrically driven drills. il Iron Age  
103:696 Mr 13 '19

Aurora tool works vertical drilling machine. il  
Mach 24:851 My '18; Am Mach 48:809 My  
9 '18

Automatic drilling machine feed. E. Ferber.  
il Am Mach 50:1146 Je 12 '19

Automatic feed attachment for drilling ma-  
chines. R. E. Byrd. diag Am Mach 49:359  
Ag 22 '18

Baker horizontal drilling and boring machine.  
il Am Mach 51:483-4 S 4 '19; Iron Age 104:  
569 Ag 28 '19



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- Baker rod drill. *il* Ry Mech Eng 92:423-4 J1 '18
- Barnes adjustable-head, gang drilling machine. *il* Am Mach 50:466 Mr 6 '19
- Black & Decker ½-inch electric drill. *il* Am Mach 50:911 My 8 '19
- Blomquist-Eck horizontal boring mill. *il* Am Mach 50:37-8 Ja 2 '19; Iron Age 103:185 Ja 16 '19; Iron Tr R 64:156-7 Ja 9 '19; Ry Mech Eng 93:48-9 Ja '19; Mach 25:465-6 Ja '19
- Boring, drilling, and milling machine made by C. and A. Harvey. *il* diags Engineer 125:292-3 Ap 5 '18
- Boring engine guides. W: A. F. Millinger. diags Am Mach 48:74 Ja 10 '18
- Boring machine for journal brasses made from old axle. *il* diags Elec Ry J 53:745-6 Ap 12 '19
- Buckeye heavy-duty upright drilling machine. *il* Am Mach 48:767 My 2 '18
- Bullard machine tool co. designs heavy-duty type boring mill. *il* Iron Tr R 62:1369 My 30 '18; Ry Mech Eng 92:358-9 Je '18; Am Mach 48:973-4 Je 6 '18
- Caukins-Carpenter sensitive drilling machine. *il* Am Mach 49:824 O 31 '18
- Connecting-rod boring machine. M. E. Hoag. *il* Am Mach 47:1103 D 20 '17
- Cylinder boring and reaming. F. D. Jones. *il* diags Mach 25:383-94 Ja '19
- Cylinder boring and reaming tools. F. D. Jones. *il* diags Mach 25:507-15 F '19
- Cylinder boring jig. M. E. Hoag. *il* Am Mach 48:464-5 Mr 14 '18
- Dallett boiler shell drill. *il* Int Marine Eng 23:315-16 My '18
- Dauber-Kratsch radial drilling machines with swinging tables. *il* Am Mach 49:638 O 3 '18
- Defiance boring machine of heavy design. Iron Tr R 62:1375 My 30 '18
- Defiance cylinder boring machines. *il* Mach 25:672 Mr '19; Am Mach 50:466-7 Mr 6 '19; Iron Age 103:691 Mr 13 '19
- Defiance gas-engine-cylinder boring machine. *il* Am Mach 50:862-3 My 1 '19
- Defiance no. 10 multiple-spindle drilling machine. *il* Am Mach 51:42-3 J1 3 '19
- Defiance no. 23 high power multiple spindle rail drill. *il* Ry Mech Eng 93:358-9 Je '19; Iron Age 103:1450 My 29 '19
- Defiance self-contained drill for heavy duty. *il* Iron Tr R 64:831 Mr 27 '19
- Defiance 24-in. drilling machine no. 3. *il* Am Mach 48:126 Ja 17 '18; Iron Age 101:199 Ja 17 '18
- Dresses simplex radial drilling machine. *il* Am Mach 51:839-40 N 6 '19
- Drill for boring square and patterned holes. *il* Sci Am 120:492 My 10 '19
- Drill grinding. E: K. Hammond. *il* chart diags Mach 24:825-30 My '18
- Easy rule for approximating tap-drill sizes. Am Mach 49:748, 990; 50:51 O 24, N 28 '18; Ja 9 '19
- Economical counterbore. M. W. Bossmann. diags Am Mach 47:1086 D 20 '17
- Economical high-speed steel counterbore. W. Nemo. diags Am Mach 48:463-4 Mr 14 '18
- Edlund new sensitive drilling machine. *il* Iron Age 102:745 S 26 '18; Am Mach 49:685-6 O 10 '18
- Edlund sensitive drilling machine. *il* Am Mach 50:768-9 Ap 17 '19
- Fleming combination-lathe, boring and milling machine. *il* Am Mach 48:597 Ap 4 '18
- Forged twist drills. diag Mach 26:11 S '19
- Fortin turret drill head. *il* Am Mach 49:1006 N 28 '18
- Fosdick heavy-duty upright drilling machine. *il* Am Mach 51:485-6 S 4 '19; Automotive Ind 41:567 S 18 '19; Ry Mech Eng 93:617-18 O '19
- Garrison drilling heads and gear holding chuck. *il* Am Mach 48:514-15 Mr 21 '18
- Giddings & Lewis horizontal boring machine. *il* Am Mach 48:41 Ja 3 '18; Mach 24:470 Ja '18
- Giddings & Lewis no. 4 boring, milling and drilling machine. *il* Am Mach 49:777-8 O 24 '18; Iron Age 102:1079 O 31 '18; Mach 25:259-60 N '18
- Giddings & Lewis no. 45 horizontal boring machine. *il* Am Mach 51:805 O 30 '19; Mach 26:282-3 N '19
- Guide for small drills in an automatic screw machine. D. A. Hampson. diag Am Mach 49:986 N 28 '18
- Gun-boring tools and data. F. H. Colvin. diags Am Mach 50:997-9 My 22 '19
- Handy offset boring head. A. Swanson. diags Am Mach 50:400 F 27 '19
- Harrington multiple-spindle drilling machine. *il* Iron Age 104:779 S 13 '19; Am Mach 51:675 O 2 '19
- Heinkel gearless multiple-spindle drilling heads. *il* diag Mach 24:658-9 Mr '18; Am Mach 48:513 Mr 21 '18; Iron Tr R 62:609 Mr 7 '18; Ind Management 55:422-3 My '18
- High-speed ball bearing drilling machine. *il* Am Mach 48:556-7 Mr 28 '18; Mach 24:747 Ap '18; Iron Age 101:871 Ap 4 '18
- Hill multiple-spindle drilling machine. *il* Am Mach 50:189-90 Ja 30 '19
- Horizontal boring machine. *il* diag Engineer 128:162-3 Ag 15 '19
- Ingersoll-Rand air drill for light work. *il* Ry Mech Eng 92:66 Ja '18
- Inspection limits for taps and drills. Mach 24:551 F '18
- Interchangeable counterbore. W. P. Lotz. diags Am Mach 50:353 F 20 '19
- Inverted bench gang drilling machine. *il* Iron Age 102:1027 O 24 '18
- Investigation of twist drills. B. W. Benedict and W. P. Lukens. *il* diags plan Ill U Eng Exp Sta Bul 103:1-139 '17; Conclusions and abstract of appendix I. Iron Tr R 63:555-6 S 5 '18
- Lambert horizontal boring machine. *il* Am Mach 49:270 Ag 8 '18
- Landau multiple drilling and tapping machine. diags Mach 24:559 F '18; Am Mach 48:472 Mr 14 '18
- Langelier multiple-spindle drilling machine for ignition tubes, with two 6-spindle drilling heads. *il* Am Mach 48:724 Ap 25 '18
- Langelier turnbuckle drilling machine. *il* diag Mach 24:559-60 F '18
- Langelier 22-spindle drilling machine for ignition tubes. *il* Am Mach 48:935 My 30 '18; Mach 24:961-2 Je '18
- Light, electricity and the shop. C. E. Clewell. *il* diags Am Mach 50:163-7 Ja 23 '19
- Little David drill for light work. *il* Elec Ry J 51:98 Ja 12 '18
- Little giant compressed-air corner drill. *il* Am Mach 49:959 N 21 '18
- Lynd-Farquhar radial wall-drilling machine. *il* Am Mach 48:982 Je 6 '18; Mach 24:951-2 Je '18
- Machine for boring babbitt linings of car-journal brasses. J. V. Hunter. *il* diag Am Mach 50:403-4 F 27 '19
- Machine for drilling chaser blanks. J. B. Smith. *il* Am Mach 50:553 Mr 20 '19
- Machine for rapid and accurate drilling operations on marine work. *il* Marine R 49:360 J1 '19
- Making use of a discarded machine. D. A. Hampson. *il* Am Mach 49:1020 D 5 '18
- Manufacturing high speed twisted drills by the hammered method. *il* Iron Tr R 62:606-8 Mr 7 '18
- Mason high-speed drilling machine. *il* Mach 24:857 My '18; Am Mach 48:1080 Je 13 '18
- Michigan cylinder reborring and burnishing tool. *il* Am Mach 51:677-8 O 2 '19
- Miscellaneous thread and drill sizes. Motor Age 34:37 N 14 '18
- Moline special milling and drilling machine. *il* Ind Management 55:333-4 Ap '18
- Morris horizontal boring and drilling machine. *il* Iron Age 103:1088 Ap 24 '19; Am Mach 50:865-6 My 1 '19; Iron Tr R 64:1295-6 My 15 '19
- Morris plain radial drilling machine. *il* Am Mach 48:40 Ja 3 '18; Mach 24:466-7 Ja '18; Ry Mech Eng 92:65-6 Ja '18; Iron Tr R 62:276 Ja 24 '18; Ind Management 55:155-6 F '18
- Multi-Au-Matic boring mill that is six machines in one. *il* Ry Mech Eng 93:394-5 Je '19

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- Multiple-spindle drill head for lathe. O. Dorthen. diags Mach 25:1081-2 J1 '19
- Multiple-spindle drilling heads; advantages and construction of various types. F. Server. il diags Mach 25:229-34 N '18
- New method of gang drilling. il diag Iron Age 103:489-92 F 20 '15
- New type of center drill. il Iron Age 102:1078 O 31 '18
- Newman turret drilling head. il Am Mach 48:81 Ja 10 '18
- Newton duplex locomotive connecting-rod boring machine. il Am Mach 50:912-13 My 8 '19; Iron Age 103:1222 My 8 '19; Iron Tr R 64:1226-7 My 8 '19
- Newton horizontal boring and drilling machine. il Am Mach 48:1076 Je 20 '18
- Newton rail-drilling machine. il Am Mach 48:933-4 My 30 '18; Iron Age 101:1419 My 30 '18; Iron Tr R 62:1314 My 23 '18; Mach 24:956 Je '18; Ry Mech Eng 92:478 Ag '18
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- Pedrick duplex boring machine. il Mach 24:1049-50 J1 '18; Am Mach 49:221 Ag 1 '18
- Portable cylinder-boring machine. M. H. Ball. diags Am Mach 48:1068-9 Je 20 '18
- Reduction head for drilling machine. E. D. Dunning. diag Am Mach 47:1093 D 20 '17
- Reed-Prentice brass drilling machine. il Mach 24:467 Ja '18
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- Salvaged small-shop boring mill. J. V. Hunter. il Am Mach 49:797 O 31 '18
- Sensitive drilling machine spindle construction. C. E. Bernitt. il diags Mach 24:704-8 Ap '18
- Silver radial drilling machines. il Iron Age 104:869 S 25 '19; Am Mach 51:874-5 O 2 '19; Iron Tr R 65:1119 O 23 '19
- Special horizontal boring machine. J. P. Brophy. il Mach 24:761-2 Ap '18
- Special shell drilling machines. D. A. Baker. diags Mach 24:1131-2 Ag '18
- Springfield gun boring machine. il Mach 24:847-8 My '18
- Tapping and assembling operations in a drilling machine. D. A. Hampson. diags Mach 25:315-16 D '18
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- Tire clamp for boring mills. H. L. Lingo. diags Ry Mech Eng 93:547 S '19
- Tools for boring a closed-bottom shell. M. H. Potter. diags Mach 25:427-8 Ja '19
- Turner turret type drilling machine. il Mach 24:561 F '18
- Universal cylinder reboring tool. il Am Mach 48:256-7 F 7 '18
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- Unusual operations on drilling machines. E. K. Hammond. il diags Mach 24:1091-3 Ag '18
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- Watts angular-hole drilling tools. diags Mach 24:952 Je '18
- Weigel drilling machine. il Iron Age 101:862 Ap 4 '18; Iron Tr R 62:857 Ap 4 '18
- Weigel vertical drilling machine with wheel and lever feed. il Mach 24:850-1 My '18; Am Mach 48:1123-4 Je 27 '18
- Western universal radial drilling machine. il Am Mach 50:1156-7 Je 12 '19
- Wilt process of twist drill manufacture. F. D. Jones. il diags Mach 24:1007-13 J1 '18
- Wisconsin drilling machine. il Mach 26:84-5 S '19
- Wisconsin high-speed sensitive radial drilling machine. il Am Mach 49:224-5 Ag 1 '18; Mach 24:1153 Ag '18
- Wisconsin type A motor-driven drilling machine. il Am Mach 49:135 J1 18 '18
- See also Broaching; Chamfering tool; Jigs; Machine tools; Reamers

Drills. See Drilling and boring machinery

Drills, Rock. See Rock drills

**Drinking fountains**

- Apply test to your drinking fountains. A. R. McGonegal. Metal Work 90:531-3 N 8 '18
- Are you developing bubbling fountain business? C. H. Rosemont. il Dom Eng 87:468-70 Je 14 '19
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**Drop forge supply association**

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- Chart which gives wire clearances necessary. Elec W 72:747 O 19 '18
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- Circuit-breaker signal for hand-operated board. L. E. Wood. *il* diag Elec W 70:1103-4 D 8 '17
- Code calling in factories. V. Karapetoff. *diag* Ind Management 58:306-8 O '19
- Construction of a bell-ringing transformer for signaling apparatus. G. F. DeSilver. *diags* plan Coal Age 15:2-3 Ja 2 '19
- 80-volt, 19-cycle circuit solves signal problem. *diag* Elec W 74:838-9 O 18 '19
- Electric buzzer raises. C. T. Rice. Eng & Min J 106:454 S 7 '18
- Electrical signalling and control on railways. C. M. Jacobs. *diags* Inst E E J 56:136-42; Discussion. 142-52, 199-204, 344-7 F-Mr, My '18
- Heavy overload indicated before circuit breaker opens. H. A. Dodge. *diag* Elec W 73:1396 Je 28 '19
- Interlocked electrical hoist signal system. *diag* Elec R 72:1004-5 Je 15 '18
- Mine electric signaling practice. T. Croft. *diags* Coal Age 16:308-12 Ag 21 '19
- Safety features in switching apparatus. M. M. Samuels and F. N. Bechoff. *diags* Elec W 71:656-9 Mr 30 '18
- Signal for indicating wattmeter supply. M. S. Montgomery. *il* Elec R 73:550 O 5 '18
- Signal lights on shipboard. Elec R 73:385, 468 S 7, 21 '18
- Signals from central stations to customers. P. Trichard. Elec W 71:1381 Je 29 '18
- Switch and signal system for freight elevator. *diags* Elec W 74:806 O 11 '19

*See also* Electric alarms; Electric railroads—Signals; Interlocking plants; Mine signals; Railroads—Signals

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- Electric bulletins from a typewriter. *il* Sci Am 119:442 N 30 '18
- Electric sign ruling by fuel administration. Dec. 3. Elec W 70:1114 D 8 '17; Same. Elec R 71:1020-1 D 15 '17
- Electric signs. P. L. Raymond. *il* diags Sibley J 32:87-91, 183-6+ Mr. S '18
- Rates cut to meet government sign regulations. Doherty managers adjust schedules. Elec R 71:1060 D 22 '17

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- Observations on current discharge across gap. C. R. Behringer. Power 48:463 S 24 '18
- Quenched spark; abstract. V. Pieck. Elec W 72:73 J1 13 '18
- Spark lengths in gases and vapors. Sci Am S 85:147 Mr 9 '18
- Sparkling power of magnetos. H. F. Geist. *diags* Automotive Ind 40:949-53 My 1 '19
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- Collection of data on telephone interference factor. Am Inst E E Pro 38:59-61 F '19
- Conservation by standardization. W. H. Merrill. Elec R 74:178 F 1 '19
- Line safety code. J Elec 42:487-8 My 15 '19
- Review of work of sub-committee on wave shape standard of the standards committee. H. S. Osborne. *il* diags Am Inst E E Pro 38:1-28 Ja '19; Abstract. Elec W 73:425-6 Mr 1 '19

**Electric starters.** *See* Airplane engines—Starting devices; Automobiles—Starting devices; Electric motors—Starting devices**Electric stations.** *See* Electric plants (central stations)**Electric steel.** *See* Steel metallurgy**Electric stores.** *See* Electric shops**Electric stoves**

- Comparisons of electric range performance. *il* Elec R 72:545-7 Mr 30 '18
- Electric ranges and water heating. Elec W 73:1093-4 My 24 '19
- Hughes automatic electric range. *il* Elec R 75:757 N 1 '19
- Interesting cost data on 1200 electric ranges. Elec W 75:642 Mr 29 '19
- Low installation costs for electric range. Elec R 73:416-17 S 14 '18
- Proper wiring installations for electric ranges. chart Elec R 73:329-30 Ag 23 '19
- Rutenber electric range. *il* Elec W 71:698 Mr 30 '18
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- Study of electric range efficiency. R. G. Kloeffler. *il* chart Elec W 71:357-9, 408-10 F 16-23 '18

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- Adapting existing lines to increased loads. E. B. Hook, Jr. *il* map Elec W 71:39-41 Ja 5 '18
- Adjusting substation capacity to the load line at the Cedar avenue substation of the Cleveland (Ohio) railway. Elec Ry J 52:462 S 14 '18
- Building a railway to Hog Island. *il* diags Elec Ry J 52:824-9 N 9 '18
- Chicago, Milwaukee & St Paul electrification in Washington. W. A. Scott. *il* Elec R 74:16-18 Ja 4 '19
- Columbus (O.) remote control substation has several novel features. *il* Elec Ry J 52:665-6 O 12 '18
- Columbus railway, light & power co.'s Canal street substation. E. W. Clark. *il* Elec R 74:670-1 Ap 26 '19
- Construction of outdoor substation at Madera, Cal. L. J. Moore. *il* diags Elec W 71:718-20 Ap 6 '18
- Designing and operating the substation for maximum efficiency. *il* diags plan Elec Ry J 51:700-4 Ap 13 '18; Discussion. G. H. McKelway. 52:624-5 O 5 '18
- Economical substation built on right-of-way. *il* Elec W 72:1082 D 7 '18
- Electric traction on the Central Argentine railway. *il* diags Engineer 126:343-4 O 25 '18
- Electricity supersedes steam pumps in Los Angeles. *il* Elec R 73:723-5 N 9 '18
- Elements of a successful outdoor substation. A. Alsaker. Elec Ry J 53:731-2 Ap 12 '19
- Engineering charges on outdoor substations. Elec W 73:82 Ja 11 '19
- Fireproof compartments for transformer units. *il* Elec W 71:414 F 23 '18
- Fireproof construction for substations. C. A. Elliott. Elec Ry J 54:487 S 6 '19
- Form of outdoor substation for heavy loads in city limits. *il* Elec R 75:797 N 8 '19
- Heating of substations. R. von Fabrice. Power 48:129-30 J1 23 '18
- How scattered industrial load is served in Iowa. diags Elec W 73:181 Ja 18 '19
- Increasing coal mine efficiency. C. E. Stuart. *il* Coal Age 14:857-60 N 7 '18
- Isolating high-tension cables in substations. *diag* plan Elec W 72:746 O 19 '18
- Keeping up the trolley voltage. C. W. Place. Elec Ry J 54:27-8 J1 5 '19

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- Large outdoor substation at Canton, Ohio. diags plan Elec W 72:347 Ag 24 '18
- Large underground synchronous substation. R. P. Hines. il diag plan Coal Age 14:434-6 S 5 '18
- Limited space requires compact substation. diags Elec W 74:130 JI 19 '19
- Metering practice for 33,000-volt outdoor station. C. P. Garman. il Elec W 73:1332 Je 21 '19
- Modern outdoor substation. M. M. Samuels. il diags plans Elec W 72:1063-73 D 7 '18
- Modern substations of large anthracite distribution system. il diag plan Coal Age 14:850-2 N 7 '18
- New type of outdoor substation to meet severe service requirements. H. W. Young. il Coal Age 15:366-7 F 13 '19
- Nisqually substation at Tacoma, Washington. il J Elec 43:257-8 S 15 '19; Same. Elec R 75:769-70 N 8 '19
- Outdoor distribution substations in war times. R. E. Cunningham. il Elec W 72:642-3 O 5 '18
- Outdoor mine substation with brick meter housing. il Elec W 73:640 Mr 29 '19
- Outdoor mine substations. H. W. Young. diag Coal Age 14:891 N 14 '18
- Outdoor station solves high-water problems. il Elec W 72:938 N 16 '18
- Outdoor substation. Elec R 72:837-8 My 18 '18
- Outdoor substation for supplying power to a coal mine. H. W. Young. il Coal Age 16:307 Ag 21 '19
- Outdoor substation in war service. E. B. Meyer. il diags plan Elec W 72:537-41 S 21 '18
- Outdoor substations for industrial loads. il Elec Ry J 50:1129-30 D 22 '17
- Outdoor substations for intercounty development. il diags plans map Elec W 73:884-7 My 3 '19
- Outdoor substations in connection with coal-mining installations. H. W. Young. il diags Am Inst Min Bul 153:1833-94 S '19; Same. Coal Age 16:712-16 O 30 '19; Same. Elec R 75:595-8 O 11 '19
- Permanence in outdoor substations. S. B. Hood. il diags Elec W 72:926-30 N 16 '18
- Power generation. A. B. Stitzer. charts Elec Ry J 54:sup72-6 O 11 '19
- Protection of large industrial substation. diag Elec W 73:132 Ja 18 '19
- Ready-made outdoor substation. il Elec W 71:1062-3 My 18 '18
- Salient features of Cleveland industrial substations. il plan Elec R 74:816 My 17 '19
- Selection of apparatus for railway converter substations. C. F. Lloyd. diag plans Elec R 74:538-41 Ap 5 '19
- Simplicity marks Michigan's largest hydro-electric development. il diag Elec R 74:167-70 F 1 '19
- Some elements in a satisfactory substation building. C. F. Lloyd. il diags plans Elec Ry J 54:832-4 N 1 '19
- Standard outdoor substation. J. T. Bronson. il diags Gen Elec R 21:640-51 S '18
- Steel riser station of permanent design. diags Elec W 73:226 F 1 '19
- Steel tower outdoor substation for industrial loads. diags Elec R 72:730 Ap 27 '18
- Sturdy substation for serving small towns. il Elec W 72:209 Ag 3 '18
- Substation equipment for St Paul's new electrification. Elec Ry J 51:1198 Je 22 '18
- Substation for industrial plant; ring-feeder system used in station erected by Public service company of northern Illinois. Elec R 72:186 F 2 '18
- Substation operation a woman's job. H. J. Burton. il Elec W 73:30-2 Ja 4 '19
- Substation operators trained in fifteen days. il Elec Ry J 53:919-20 My 10 '19
- Substation renders the power system flexible. Elec Ry J 52:447 S 14 '18
- Substation short-circuits. R. F. Gooding. diags Elec J 16:61-5 F '19
- Substation withstands floods periodically. P. C. Petersen. il Elec W 73:846 Ap 26 '19
- Substations designed to permit future changes. il Elec W 74:874-5 O 25 '19
- Substations for Y-connected systems. A. V. Taylor. il Elec W 74:172-5 JI 26 '19
- Two-circuit substation tap. il Elec R 72:926 Je 1 '18
- Uniquely situated underground substation. il plan Elec R 72:686-7 Ap 20 '18
- Well-lighted and well-ventilated substation of Kansas City railways. S. H. Grauten. il diag plan Elec Ry J 53:326-7 F 15 '19

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- Actual construction cost of industrial substation. Elec W 72:747 O 19 '18
- Distribution of cost in outdoor substations. H. W. Young. diags Elec W 73:1393 Je 28 '19
- Estimated total cost of semi-outdoor substation. Elec W 71:621 Mr 23 '18

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- Application of the automatic railway converter substation. C. S. Burlingham. il Sibley J 32:157-61 JI '18
- Automatic operation is discussed at Schenectady. Elec W 73:490 Mr 8 '19
- Automatic re-closing device for automatic substations. B. F. Pearson. il diag Elec R 72:731-2 Ap 27 '18
- Automatic substation. C. Dorticos. Elec Ry J 52:157-8 JI 27 '18
- Automatic substation from an economic standpoint. il Elec R 75:104-5 JI 19 '19
- Automatic substation has come to stay. W. C. Slade. Elec Ry J 52:651-4 O 12 '18
- Automatic substation of new type on Ohio electric railway. R. J. Wensley. il diag Elec Ry J 51:707-9 Ap 13 '18
- Automatic substations installed by, or on order from the General electric company. Elec Ry J 53:54 Ja 4 '19
- Automatic substations on the North Shore line. C. H. Jones. il charts diag map plans Elec Ry J 53:84-90 Ja 11 '19
- Automatically operated synchronizing station. diag Elec W 71:153 Ja 19 '18
- Automatically remote-controlled synchronous-motor-generator substation. W. T. Snyder. il diags Elec R 73:407-9 S 14 '18
- Railway automatic sub-station at Torrance. il J Elec 48:470 N 15 '19
- Savings effected by automatic substations. H. E. Davis. il chart plan Elec Ry J 51:692-5 Ap 13 '18
- Simplified diagram of automatic substation circuits. Aurora, Elgin & Chicago railroad. Elec Ry J 53:104 Ja 11 '19
- Simplifying the automatic substation circuit diagram. diags Elec Ry J 52:979 N 30 '18
- Sources of economy in automatic substation control. C. F. Lloyd. Elec Ry J 53:922-3 My 10 '19
- Space saved by double-deck arrangement in automatic substation. diags Elec Ry J 52:118-19 JI 20 '18
- Standard automatic substation equipment. R. J. Wensley. il diag Elec J 16:218-22 My '19
- Two-unit automatic substation. W. C. Slade. il diags plan map Elec Ry J 52:1038-44 D 14 '18
- Why the automatic substation saves materials and labor. C. F. Lloyd. il Elec Ry J 51:705-6 Ap 13 '18
- Year of the automatic substation at Butte. E. J. Nash. il diags Elec Ry J 53:565-7 Mr 22 '19; Same. Gen Elec R 22:552-5 JI '19

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- Large portable substation, Long Island R.R. il diag plan Ry R 63:911-12 D 28 '18; Same. Elec R 73:781 N 16 '18; Same cond. Elec W 73:84 Ja 11 '19
- Largest portable substation yet produced. B. H. Lytle. il diags Elec Ry J 52:467-8 S 14 '18
- Portable substation. Elec R 72:720 Ap 27 '18
- Portable substation for serving emergency loads equipped by Portland (Ore.) railway, light & power company. il Elec W 71:726 Ap 6 '18
- Portable substation serves sudden load increase. F. B. Lewis. Elec W 74:77 JI 12 '19
- Semi-automatic portable substation built at St Louis. il diags Elec Ry J 52:1051-2 D 14 '18

- Electric subways. See Electric conduits; Subways (conduits)
- Electric supplies. See Electric industries; Electric shops
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- Electric switches
- Air and oil-break switches for outdoor service. H. W. Young. Elec R 75:796-7 N 8 '19
  - Alternating-current magnetic contactor. il Elec W 72:330 Ag 17 '18
  - Automatic knife switch. il Elec W 71:490 Mr 2 '18; Elec R 72:438 Mr 9 '18
  - Automatic moment switches for porch and hall lights. diag Elec R 72:209 F 2 '18
  - Automatic time switch. Elec R 73:20 J1 6 '18
  - Automatic track switches release men for other work. R. C. Cram. il diags Elec Ry J 52:686-93 O 19 '18
  - Benziniform in high-tension oil-break switches. M. Vogelsang. Sci Am S 88:194-5 S 27 '19
  - Blackburn-Smith inclosed tank switch. il Power 49:388 Mr 18 '19
  - Burke horn-gap switches. il Elec R 71:1037 D 15 '17
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  - Compro inclosed switches and meter protective device. il Elec R 71:1036 D 15 '17
  - Concrete brick for high-tension cells. E. B. Meyer. il Elec W 72:977-8 N 23 '18
  - Crouse-Hinds safety-first switches. il Textile World 53:4043 Mr 2 '18
  - C-H inclosed float switch. il Elec R 72:488 Mr 16 '18
  - Developments in oil switches for remote control of outdoor lighting circuits. il Elec R 75:370 Ag 30 '19
  - Developments in the electrical industry during 1918. J. Liston. il diags Gen Elec R 22:33-40 Ja '19
  - Direct-current magnetic switches. il Elec W 72:90-1 J1 13 '18
  - Emergency lighting switch. D. R. Hibbs. diags Power 47:197 F 5 '18
  - European high-voltage switchgear. W. A. Coates. il Elec J 16:243-8 Je '19
  - 5000-kva., 100,000-volt new-type air-break switch. G. T. Southgate. il diags Elec W 74:407-9 Ag 23 '19
  - Frequent causes of oil-switch troubles. F. A. Allner and A. Bauhan. Elec W 73:1393 Je 28 '19
  - G. E. back-of-board type field switches. il Elec Ry J 50:1085 D 15 '17; Elec R 73:842 Ag 31 '18
  - G. E. combined fuse and disconnecting switch for outdoor service. il Elec R 72:740-1 Ap 27 '18; Elec W 71:907 Ap 27 '18
  - G. E. improved safety-first inclosed-lever switch. il Elec W 70:1225 D 22 '17; Eng & Min J 104:1049 D 15 '17; Metal Ind 15:497 N '17
  - G. E. low-tension dead-front switch panel. il Elec R 72:1098-9 Je 29 '18; Iron Tr R 63:263 Ag 1 '18
  - G. E. safety-first induction-motor pedestal. il diags Elec R 73:512-13 S 28 '18; Iron Tr R 63:722-3 S 26 '18; Elec W 72:520 S 14 '18; Coal Age 14:862 N 7 '18
  - G. E. safety first steel switching cabinet. il Elec R 73:555 O 5 '18; Coal Age 14:742 O 17 '18; Power 48:526 O 8 '18; Ind Management 56:431-2 N '18
  - G. E. wall-type switching unit. diags Elec R 73:673 O 26 '18; Coal Age 14:863 N 7 '18
  - Inexpensive remote-control switch for street lighting. il Elec W 71:309 F 9 '18
  - Inexpensive voltmeter switch. J. J. Nolan. diag plan Power 50:73 J1 8 '19; Same. Coal Age 16:350-1 Ag 28 '19
  - Installing disconnecting switches. il Power 49:293, 740 F 25, My 13 '19
  - Krantz safety inclosed switches. il Elec W 71:698-9 Mr 30 '18; Elec R 72:1055 Je 22 '18; Coal Age 14:554-5 S 19 '18; Power 47:868 Je 18 '18
  - Large oil-break switches made by British Thomson-Houston company; abstract. Elec W 72:214-15 Ag 3 '18
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  - Meyers safety switches. diag Elec W 71:1115 My 25 '18
  - Mine signal pull switches. il Coal Age 13:675 Ap 13 '18
  - Modern bus and switch structures. C. D. Gray and M. M. Samuels. il diags Elec W 73:788-92, 831-3 Ap 19-26 '19
  - Mounting loom-motor switches in pairs. il Elec W 71:517-18 Mr 9 '18
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  - New oil switch used to start and stop full fashioned knitting machines. il Textile World 55:35+ Ja 4 '19
  - New vertical-break horn-gap switch. il Elec R 73:871 N 30 '18
  - Oil switch for slip-ring motors. il Iron Tr R 64:771 Mr 20 '19; Iron Age 103:825 Mr 27 '19
  - Opinion on high-tension switching and protection. Elec W 72:853-4 Ag 24 '18
  - Paragon time switches. il Elec R 72:781 My 4 '18
  - Points to consider in the design of terminals. F. Bechoff. diags Elec W 71:256-7 F 2 '18
  - Safety features in switching apparatus. M. M. Samuels and F. N. Bechoff. diags Elec W 71:656-9, 1075-8; 72:878-80 Mr 30, My 25, N 9 '18
  - Sectionalizing cable-junction box. il Elec R 71:1118 D 29 '17; Elec Ry J 50:1171 D 29 '17; Elec W 71:74 Ja 5 '18
  - Special switches made by Pacific electric manufacturing co. il J Elec 43:284 S 15 '19
  - Standard outdoor substation. J. T. Bronson. il diags Gen Elec R 21:640-51 S '18
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  - Switchgear standardization. C. C. Garrard. diags Inst E E J 56:213-28 Ap '18; Abstract. Elec W 71:732 Ap 6 '18; Discussion. Inst E E J 56:228-46, 436-42 Ap, Je '18
  - Tendency toward outdoor switching apparatus; abstract. H. G. MacDonald. Elec W 71:940 My 4 '18
  - Tests on oil switches; abstract. C. C. Garrard. Elec W 71:1220 Je 8 '18
  - Time-limit overload protective plugs for motor switch. il Elec R 73:906-7 D 7 '18
  - Time switch controls large off-peak loads. diag Elec W 74:77 J1 12 '19
  - Use of three-way switches reduces current consumption. diag Elec R 74:276-7 F 15 '19
  - Voltmeter switch for paralleled generators. diags Elec W 74:837 O 18 '19
  - Washers for aligning switch movement. C. M. Charland. diag Elec R 73:510-11 S 28 '18
  - Westinghouse line switches. il Coal Age 14:863 N 7 '18
  - Westinghouse safety-first knife switch. il Power 47:80 Ja 15 '18
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- Accurate timing in electrical tests. F. A. Kartak. il diags Elec W 73:672-5 Ap 5 '19
  - Artificial load for testing. il Elec W 71:646 Mr 23 '18
  - Circuits tested with telephone receivers. H. S. Rich. diag Elec W 74:530 S 6 '19
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  - Curing electric troubles. il diag plan Motor Age 35:22-4 Mr 20 '19
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  - Home-made high-potential test set. diag Elec Ry J 51:864 My 4 '18

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Phase and fault testing by means of lamp signals. F. Gillooley. diags Elec R 74:617-19 Ap 19 '19

Spark recorder used in testing apparatus. F. W. Springer. diag Elec W 72:1129-30 D 14 '18

*See also* Dynamometer; Electric furnaces—Testing; Electric fuses—Testing; Electric laboratories; Electric lines—Testing; Electric measurement; Electric meters—Testing; Electric motors—Testing; Electric resistance; Electric transformers—Testing; Insulation—Testing

**Electric tractors**

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*See also* Electric locomotives; Electric trucks; Electric vehicles

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Possibilities of radiant heat. J. P. Conroy. Gas Age 41:77-8 Ja 15 '18

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Why fear electric competition? G. W. Allen. Gas Age 42:132-3 Ag 1 '18

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See Gas—Ignition

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Better merchandising methods needed now. F. Kelsey. Gas Age 43:447-9 Ap 15 '19; Same. Am Gas Eng J 110:296, 305-8 Ap 5 '19

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Filling the valleys in gas and appliance sales. W. Gould. Gas Age 44:424-5 N 1 '19

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- Grinding operations on caterpillar tractor parts. F. A. Stanley. il diags Am Mach 50:1-4 Ja 2 '19
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- Investigation of twist drills. B. W. Benedict and W. P. Lukens. il diags plan Ill U Eng Exp Sta Bul 103:109-18 '17
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- Grinding machines**
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- Angle cock grinding machine. diags Ry Mech Eng 91:696 D '17
- Automatic wide wheel grinder. il Iron Age 104:858 S 25 '19
- Barnes precision grinding machine for milling cutters. il Am Mach 49:592-3 S 26 '18
- Blair thread gage machines. il diags Mach 25:165-7 O '18
- Blanchard no. 10 surface grinding machine. il diag Mach 25:659-60 Mr '19; Iron Tr R 64:705-6 Mr 13 '19; Am Mach 50:565-7 Mr 20 '19
- Bridgeport surface-grinding machine. il Am Mach 48:554 Mr 28 '18; Mach 24:756 Ap '18
- Coates universal tool- and cutter-grinding machine. il Am Mach 49:175 Jl 25 '18
- Community thread-gage grinding machine. il Mach 24:1047-8 Jl '18; Am Mach 49:177-8 Jl 25 '18
- Connecticut universal grinding machine. il Am Mach 50:229 Ja 30 '19
- Currier-Koeth grinding machine for valves and reseating tools. il Am Mach 48:255 F 7 '18
- Cylinder grinding. F. D. Jones. il diags Mach 25:615-21, 711-15 Mr-Apr '19
- Cylinder grinding applied to special work. il Mach 25:914-15 Je '19
- Defiance no. 50 valve-grinding machine. il Am Mach 48:555 Mr 28 '18; Ind Management 55:420 My '18
- Detroit roll grinding machine. il Am Mach 49:222 Ag 1 '18
- Draper & Hall universal grinding machine. il Am Mach 47:1060 D 13 '17

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- Dumore portable electric grinder. *il Elec Ry J 31:332 Mr 16 '15; Ind Management 56:158 Ag '15*
- Fischer profile grinding machine. *il diags Mach 25:366-7 D '18*
- Fraser self-contained universal grinder. *il Mach 24:1154 Ag '18; Am Mach 49:279 Ag 3 '15*
- Fraser universal grinding machines. *il Am Mach 50:1012 My 22 '19*
- Grand Rapids drill-grinding machines. *il Am Mach 49:44 Jl 4 '18; Mach 24:1030 Jl '18; Iron Age 19:2:231 Ag 1 '18*
- Grinding in locomotive shops. M. H. Williams. *il Ry Mech Eng 92:629-32 N '18*
- Grinding machine for cylinder liners. M. E. Hoag. *il Am Mach 47:1193 D 20 '17*
- Grinding round work without centers. *il diags Am Mach 50:4-5 Ja 2 '19*
- Harris automatic universal hob and form cutter grinding machine. *il Am Mach 50:180-1 Ja 23 '19; Mach 25:561-2 F '19*
- Heald no. 20, 8- and no. 22, 12-inch rotary surface-grinding machines. *il Am Mach 50:1203-4 Je 19 '19*
- Heald no. 60 internal grinder in the locomotive shop. *il Ry Mech Eng 93:362 Je '19*
- Heald no. 65 cylinder grinder. *il diags Mach 25:360-2 D '18; Am Mach 49:1053-4 D 5 '18; Automotive Ind 40:222-3 Ja 23 '19*
- Heald no. 85 internal grinding machine. *il Am Mach 51:339-40 Ag 14 '19; Iron Age 104:442 Ag 14 '19; Ry Mech Eng 93:557-8 S '19*
- International thread-gage grinding machine. *il Am Mach 50:418-19 F 27 '19*
- Lafayette thread-tool grinding fixture. *il Mach 24:1057-8 Jl '18*
- Lafayette universal grinder. *il Mach 26:279-80 N '19*
- Landis self-contained crankshaft grinding machine. *il Am Mach 50:813-14 Ap 24 '19; Iron Tr R 64:1285-6 My 15 '19; Mach 25:850-1 My '19*
- Lumsden tool-grinding machine. *il Am Mach 51:228-9 Jl 31 '19; Ry Mech Eng 93:500-1 Ag '19*
- Machine for accurate and continuous grinding—novel wheel arrangement. *il Iron Age 103:1448 My 29 '19*
- Machine for grinding button dies. *il diags Am Mach 51:609-10 S 25 '19*
- Machine for grinding in large cocks. H. J. Ventner. *il Am Mach 50:553-4 Mr 20 '19*
- Machine for surface-grinding anvils. F. D. Hood. *il Am Mach 49:334 Ag 22 '18*
- Manhattan universal grinding machine. *il Am Mach 48:555 Mr 28 '18; Mach 24:746-7 Ap '18*
- Multiple cam-grinding attachment. J. Lennartz. *diags Mach 25:214 N '18*
- Mummert-Dixon portable radial grinding machine. *il Am Mach 48:171 Ja 24 '18; Iron Age 101:257 Ja 24 '18; Mach 24:561-2 F '18*
- Newton radius-link grinding machine. *il Am Mach 50:1155-6 Je 12 '19*
- Noble & Westbrook no. 2 surface grinder. *il Ind Management 55:246 Mr '18*
- Notable advance in grinding. *il Ry Mech Eng 93:363-4 Je '19*
- Ott plain-grinding machine. *il Am Mach 48:553 Mr 28 '18; Mach 24:747-8 Ap '18*
- Ott 6 x 6-in. internal grinding machine. *il Am Mach 51:771-2 O 23 '19*
- Patriarch among grinding machines. J. Drew. *il Am Mach 50:1096-7 Je 5 '19*
- Persons-Arter 16-in. rotary surface-grinding machine. *il Am Mach 49:223-4 Ag 1 '18; Mach 24:1152 Ag '18*
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- Pringle portable grinding machines. *il Mach 24:1052-3 Jl '18*
- Reclaiming bull's-eye lubricator glasses. *il Ry Mech Eng 93:92 F '19*
- Reclamation of electric railway track by welding and grinding by the Connecticut company. H. J. Tippet. *il Elec Ry J 53:773-6 Ap 19 '19*
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- Refinement in Grand Rapids grinding machine co. twist drill grinders. *il Ry Mech Eng 93:391 Je '19*
- Rivett no. 106 internal grinder. *il Mach 24:659-60 Mr '18*
- Robbins, Gamwell circular cutter-grinding machine. *il Am Mach 49:318 Ag 15 '18*
- Saphil electric grinding machine. *il Am Mach 50:227 Ja 30 '19*
- Schmidt internal grinder. *il Ind Management 55:334 Ap '18*
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- Security internal chucking grinder. *il Mach 25:852-3 My '19; Am Mach 50:907-8 My 8 '19*
- Self-contained centerless grinder for precision work. *il Iron Tr R 64:1090 Ap 24 '19*
- Setting a universal machine to grind parallel holes. C. Eldridge. *Am Mach 49:1046 D 5 '18*
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- Traverse motion for grinder carriage. F. R. Daniels. *diags Mach 24:1136-7 Ag '18*
- Vertical disk grinding machine. *il Ind Management 55:246 Mr '18*
- Webster & Perks no. 1 universal cylindrical grinder. *il diags Mach 24:459-60 Ja '18; Am Mach 48:215-16 Ja 31 '18; Iron Age 101:327 Ja 31 '18*
- Whitney no. 23 cylinder-grinding machine. *il Am Mach 48:471 Mr 14 '18*
- Wilmarth & Morman New Yankee motor driven drill grinder. *Ry Mech Eng 92:65 Ja '18*
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- Worcester type A internal grinding machine. *il Am Mach 51:43-4 Jl 3 '19; Mach 25:1096 Jl '19*

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- Automatic feed mechanism for Wilmarth & Morman universal cutter and tool grinder. *il diags Mach 24:463 Ja '18; Iron Age 100:1527 D 27 '17; Am Mach 48:41 Ja 3 '18*
- Hand versus power feed in surface grinding. D. Baker. *Am Mach 49:901 N 14 '18*
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- Glass shields for grinding wheels. *diags Ry Mech Eng 92:115 F '18*

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- Abrasion-meter. R. F. Yates. *il Sci Am S 87:372-3 Je 14 '19*
- Air-turbine-driven grinding wheel. W. J. Nene. *diag Am Mach 48:658 Ap 18 '18*
- Balancing grinding wheels. *il Mach 25:395 Ja '19*
- Economical foundry use of grinding wheels. W. T. Montague. *il Foundry 46:362-7 Ag '18; Same cond. Iron Age 101:318-21 Ja 31 '18*
- Grinding wheel truing device. F. C. Bolton. *diags Mach 24:744 Ap '18*
- H. P. wheel-truing tools. *il Mach 24:852-3 My '18*
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- Rock grizzly at the Franklin mine. A. O. Christensen. *diag plan Eng & Min J* 108:621 O 11 '19
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- Light Mikado type of locomotive for the United States government. *il Ry R 63:57-8, 155-60 JI 20, Ag 3 '18*
- Locomotive cost as related to service. *Ry Age 64:1162 My 10 '18*
- Locomotive development. *Ry R 62:722-3 My 18 '18*
- Locomotive orders in 1917 from companies in the United States and Canada; tabulation. *Ry Age 64:61-4 Ja 4 '18*
- Locomotive side play. *Ry Mech Eng 92:278-9 My '18*
- Locomotive situation. *Ry Age 64:11-12 Ja 4 '18*
- Locomotives for French railways. *il diags Ry Mech Eng 92:136-9 Mr '18; Same cond. Ry Age 64:501-5 Mr 8 '18; Same cond. Ry R 62:293-4 Mr 2 '18*
- Locomotives of the year. *Engineer 127:5-6, 12 Ja 3 '19*
- Mallet simple locomotive. *Engineer 128:467 N 7 '19*
- Mallet type locomotive for Utah railway. *il Ry R 64:85-6 Ja 18 '19*
- Mechanical stoking of locomotives; abstracts. W. S. Bartholomew. *Ry R 65:2-5 JI 5 '19; Ry Age 67:163-7 JI 25 '19; Ry Mech Eng 93:465-9 Ag '19*
- Metamorphosis of the locomotive. H. Holcroft. *diags Engineer 128:78-80, 103-4, 126-9, 153-4 JI 25-Ag 15 '19*
- Most powerful locomotive in the world. *il Sci Am 119:294-5 O 12 '18*
- Motive power and rolling stock situation. *Ry Age 66:68-70 Ja 3 '19*
- Motive power under government control. G. N. De Guire. *Ry Age 67:349-52 Ag 22 '19*
- New British-built locomotives for the Anglo-French express service. F. C. Coleman. *il Ry R 62:81-2 Ja 19 '18*
- New Consolidation locomotives and excursion cars on the Victorian railways. *il diags Engineer 126:15-16 JI 5 '18*
- New locomotives for the Texas & Pacific railway. *il Ry R 65:203-4 Ag 9 '19*
- Oil-burning steam locomotive. *il Munic Eng 54:38 Ja '18*
- 1,025 locomotives and 95,000 cars ordered by government. *Ry Age 64:1145-6 My 3 '18*
- Pacific tank locomotive for the Caledonian Ry. F. C. Coleman. *il Ry R 62:439-40 Mr 23 '18*
- Pacific type locomotive, Lehigh Valley R. R. *il Ry R 64:785-6 My 31 '19*
- Pacific type locomotives for the Central of New Jersey. *il Ry Age 65:769-70 N 1 '18*
- Passenger locomotive, Caledonian railway. (supp) *Engineer 125:248 Mr 22 '18*
- Powerful British-built express passenger locomotive for Great Central railway co. of England. F. C. Coleman. *il Ry R 62:261-2 F 23 '18*
- Railroad administration's motive power problems. A. B. Johnson. *Ry Age 64:965-8 Ap 12 '18; Same. Ry R 62:536-9 Ap 13 '18; Excerpts. Ry Mech Eng 92:246-8 My '18; Abstract. Coal Age 13:931 My 18 '18; Discussion. Ry Age 64:1018 Ap 19 '18*
- Recent American express locomotives. E. C. Poultney. *Engineer 127:523-4, 550-2, 574-5 My 30-Je 13 '19*
- Recent American freight locomotives. *il Engineer 126:222, 232-3 S 13 '18*
- Recent Australian and New Zealand locomotives. *il Engineer 128:180 Ag 22 '19*
- Recent locomotive development and its effect on capacity and fuel economy. *Ry R 62:610-11 Ap 27 '18*
- Recent locomotives for the French state railways. F. C. Coleman. *il Ry Age 65:861-3 N 15 sec 1 '18*
- Relative economy of the locomotive of 1900 and today. J. E. Muhlfeld. *Am Soc M E J 40:pt 2, 655-6 JI '18; Same. Ry Age 65:305-6 Ag 16 '18; Same. Ry R 63:166-7 Ag 3 '18; Discussion. Ry Age 65:306-7 Ag 16 '18*
- Rolling stock of 1919. H. T. Walker. *il diags Sci Am 121:250-1—S 13 '19*
- Santa Fe locomotive for the belt railway of Chicago. *il Ry R 62:611-12 Ap 27 '18*
- Santa Fe 2-S-2 type locomotive. *il diags Ry Mech Eng 92:53-5 F '18*
- Santa Fe type locomotives. *Ry R 62:160-1 F 2 '18*
- Santa Fe type locomotives for light track. *il Ry Mech Eng 93:533 O '19*
- Scientific development of the steam locomotive. J. E. Muhlfeld. *Ry Age 67:1139-43, 1197-1262 D 12-19 '19; Same cond. Mech Eng 41:864-9 N '19*
- Shifting of motive power from road to road. *Ry Age 64:899-900 Ap 5 sec 1 '18*
- Side rod straps. *il Ry Mech Eng 92:287 My '18*
- Sixty year old locomotive. *il diag Engineer 125:432 My 17 '18*
- Tank engines. *Ry Age 65:116, 158, 373 JI 19-26, Ag 30 '18*
- Ten-wheel and Mikado type locomotives for the Paris-Orleans Ry. F. C. Coleman. *il Ry R 63:267-8 Ag 24 '18*
- Traveling engineers' association 27th annual meeting. Chicago. *Ry R 65:422-6, 450-1 S 20-27 '19*
- Typical British locomotive. *il Sci Am S 85:252 Ap 20 '18*
- Universities and railroad equipment development. *Ry Mech Eng 92:47-9 Ja '18*
- Yankee's idea of French engines. *il Ry Mech Eng 92:249-50 My '18*
- See also Electric locomotives; Locomotive boilers, and other headings beginning Locomotive; Railroads; Roundhouses; Steam engines; Stokers, Mechanical; Tractors; also American locomotive company*

## Axles

- Forged tires and axles. L. Genze. *Iron Age 103:240 Ja 23 '19*
- Heat treatment of axles. D. D. Miller. *il Ry Mech Eng 92:419-21 JI '18*
- Hollow steel axles and safety first. J. Pollak. *il Iron Age 101:1129-31 My 2 '18*

## Cleaning

- Cleaning locomotives. *diag Ry R 62:514-15 Ap 6 '18*
- D. & M. process of cleaning locomotives. *il diag Ry R 63:724-5 N 16 '18*

## Counterbalancing

- Reduce dynamic augment for heavy locomotives; abstracts. E. W. Strong. *Ry Age 64:415-17 F 22 '18; Ry R 62:341-5 Mr 9 '18; Ry Mech Eng 92:257-60 My '18*

## Crosshead pins

- Crosshead pin on Russian built locomotives. J. Grant. *il diag Ry Mech Eng 93:416 JI '19*

## Design

- Administration standard light mountain type. *il diags Ry Age 66:1193-6 My 16 '19; Same. Ry Mech Eng 93:431-5 JI '19*
- A. T. & S. F. 4-8-2 type locomotives. *il diags Ry Mech Eng 92:649-52 D '18*
- C. C. C. & St. L. 0-8-0 switchers. R. W. Retterer. *il diags Ry Mech Eng 93:411-14 JI '19*
- Drafting modern locomotives. H. W. Codrington. *diags Ry Mech Eng 92:387-92, 439-44 JI-Ag '18*
- First of the U.S. standard locomotives completed; light Mikado type. *il diags Ry Age 65:131-3 JI 19 '18; Same. Ry Mech Eng 92:436-8 Ag '18*
- First standard 0-8-0 type switching locomotive. *diags Ry Age 65:542-4 S 20 '18; Same. Ry Mech Eng 92:543-5 O '18*
- Government standard switching locomotives. *diags Ry R 63:513-15 O 5 '18*

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Heaviest 2-10-2 type built for Pennsylvania lines. *il* diags Ry Age 66:249-51 Ja 24 '19; Same. Ry Mech Eng 93:63-6 F '19; Same *abr.* Engineer 125:82 Ja 25 '19

Heavy Mallet compound for Virginian railway. *il* Ry R 63:497-8 O 5 '18; Same cond. Ry Age 65:658-91 O 18 '18

Heavy Mikado type locomotive for A. T. & S. F. Ry. *il* diags Ry R 61:751-2 D 22 '17; Same. Ry Age 64:293-11 Ja 25 '18

Heavy standard Mikado locomotive. United States railroad administration. *il* diags Ry Mech Eng 92:491-4 S '18; Ry Age 65:374-6 Ag 30 '18; Ry R 63:331-4 S 7 '18

Light and heavy standard Pacific type locomotives. *il* diags Ry Age 66:959-4 Ap 11 '19

Locomotive design from a maintenance standpoint. W. H. Winterrowd. Ry Mech Eng 91:678-80 D '17

London and South-western railway—six coupled passenger locomotive. *il* diags supp Engineer 126:353 N 1 '18

Longitudinal disturbing forces in locomotives. E. L. Coster. *diag* Ry Mech Eng 93:420-2 J1 '19

Mallet compound locomotives for Wheeling & Lake Erie Ry. *il* diags Ry R 62:5-6 Ja 5 '18

Mikado type locomotives of the C. P. R. *il* diags Ry R 65:523-4 O 11 '19

Modern tendencies in locomotive design. L. E. Endsley. Ry R 62:148-50 F 2 '18

New York Central 4-8-2 type locomotives. *il* diags Ry Age 63:1187-10 D 28 '17; Same. Ry Mech Eng 92:77-80 F '18

Norfolk & Western 267-ton Mallet locomotive. H. W. Reynolds. *il* diags plan Ry Age 65:59-63 J1 12 '18; Same. Ry Mech Eng 92:445-50 Ag '18

Pacific and Mikado type locomotives, C. B. & Q. R. R. *il* diags Ry R 63:1-5 J1 6 '18; Same cond. Ry Age 65:224-5 Ag 2 '18

Penn. lines Mallet locomotive. *il* diags Ry Mech Eng 93:513-15 S '19; Same cond. Ry R 65:157-9 Ag 2 '19

Philadelphia & Reading 2-8-0 type locomotive. *il* Ry R 64:318-19 Mr 1 '19; Ry Age 66:760-2 Mr 21 '19; Ry Mech Eng 93:175-7 Ap '19

Pulverized fuel locomotive. *il* diags (supp) plan Engineer 127:400-2 Ap 25 '19

Recent advantages in locomotive efficiency. Paris, Lyons & Mediterranean Ry. C. R. King. *il* diags Ry R 62:851-5 Je 15 '18; Discussion. 63:132 J1 27 '18

Reduce dynamic augment for heavy locomotives; abstracts. E. W. Strong. Ry Age 64:415-17 F 22 '18; Ry R 62:341-5 Mr 9 '18; Ry Mech Eng 92:257-60 My '18

Rock Island 2-10-2 locomotive. *il* diags Ry Mech Eng 93:41-3 Ja '19

Santa Fe locomotive, Pennsylvania lines west. *il* diags Ry R 64:313-14 Mr 1 '19

Should standard locomotives be considered as a war measure? Ry Age 64:436-7 Mr 1 '18

Small locomotives of special types. *il* diags plan Engineer 125:419-21, 442-3, 448, 464-5, 472, 507-10; 126:111-12, 118 My 17-31, Je 14, Ag 9 '18

Standard 4-6-2 type locomotives. *il* charts diags Ry Mech Eng 93:230-5 My '19

Standard heavy 4-8-2 and light 2-10-2 locomotives. *il* charts diags plan Ry Age 65:1066-73 D 13 '18; Same. Ry Mech Eng 93:25-30 Ja '19

Standard heavy Santa Fe 2-10-2 type locomotive. chart diags Ry Age 66:338-92 F 14 '19; Same. Ry Mech Eng 93:119-23 Mr '19

Standard six-wheel switcher. *il* diags Ry Mech Eng 92:593-6 N '18

Standard 2-8-8-2 type locomotives. *il* diags Ry Mech Eng 93:187-90 Ap '19; Same. Ry Age 66:575-8 Mr 14 '19

Standard 2-10-2 and 4-8-2 type locomotives. *il* diags Ry R 64:7-12 Ja 4 '19

Three-cylinder locomotive. A. McBeth. Engineer 127:56 Ja 17 '19

Three-cylinder locomotive for Constantinople; abstract. Mech Eng 41:285 Mr '19

Three-cylinder locomotives. H. Holcroft. diags Engineer 127:485-9 My 16 '19

Three-cylinder locomotives. H. S. Vincent. diags Engineer 127:326-7 Ap 4 '19

2-8-8-0 simple Mallet locomotive Pennsylvania R. R. *il* diags Ry R 65:81-8 J1 19 '19

2-10-2 type locomotives for the U. P. *il* diags Ry Mech Eng 92:321-4 Je '18; Same cond. Ry Age 64:1572-4 Je 28 '18

U.S.R.A. standard six-wheel switching locomotive; the first of the smallest government engines to be built. *il* chart diags Ry Age 65:654-7 O 11 '18

U.S. standard light Mallet 2-6-6-2 type locomotive. *il* diags Ry Age 66:290-2 Ja 31 '19; Same. Ry Mech Eng 93:74-7 F '19

Virginian 2-10-10-2 locomotives. *il* diags Ry Mech Eng 92:600-4 N '18

Wabash 2-10-2 type locomotive. *il* diags Ry Mech Eng 91:667-70 D '17; Same. Ry Age 63:1025-8 D 7 '17

Work of the supply engineer. W. E. Woodard. Ry R 64:518-19 Ap 5 '19

*See also* Locomotives—Front ends; Locomotives—Standards

**Driving boxes**

Gages for driving box work. J. H. Hahn. diags Ry Mech Eng 92:164 Mr '18

Inadequate main boxes. Ry Mech Eng 93:118, 174, 410, 512, 568 Mr-Ap, J1, S-O '19

Machining locomotive driving boxes. F. A. Stanley. *il* diags Ry Mech Eng 92:573-5 O '18

Machining locomotive driving boxes. M. H. Williams. *il* diags Ry Mech Eng 93:155-9 Mr '19

**Driving wheels**

Drilling holes for hub plate studs. diags Ry Mech Eng 93:259-60 My '19

Testing driving wheels for quarter. E. R. Breaker. *diag* Ry R 63:69 J1 13 '18

Trying a pair of driving wheels for quarter. V. T. Kropidowski. *diag* Ry R 62:807-8 Je 1 '18

**Equipment and supplies**

Air consumption on locomotive auxiliary devices; abstracts. C. H. Weaver. Ry R 64:682-5 My 10 '19; Ry Age 66:1165-8 My 9 '19; Ry Mech Eng 93:423-6 J1 '19

Car and locomotive specialties ordered. Ry R 62:585-6 Je 15 '18

Conservation in use of locomotive supplies. W. J. Tollerton. Ry Age 64:1316 My 31 '18

Fire-lighters for locomotives. *il* diags Engineer 125:412 My 10 '18

Loco-recorder. *il* Ry R 65:670 N 1 '19

Locomotive front end spark arrester. *il* diags Ry Mech Eng 92:118-19 F '18; Same. Ry Age 64:372-3 F 15 '18

Locomotive pulverized fuel equipment. *il* *diag* Ry Mech Eng 93:498-500 Ag '19

Parasite reservoir governor. *il* *diag* Ry Mech Eng 93:107 F '19

Specialties for standard cars and locomotives. Ry Age 66:91-2 Ja 3 '19

Throttle safety appliance. diags Ry Mech Eng 92:228 Ap '18

*See also* Feed water heaters; Locomotive bells; Locomotive boilers; Locomotive fireboxes; Locomotive headlights; Locomotives—Gearing; Locomotives—Superheaters; Stokers, Mechanical

**Failures**

Engine failures, causes and remedies; abstracts of committee report of Traveling engineers' association. Ry Age 65:505-6 S 13 '18; Ry R 63:429-32 S 21 '18; Ry Mech Eng 93:77-8 F '19

Personal injuries due to locomotive failures. J. L. Mohun. Ry Age 67:113-18 J1 18 '19; Same. Ry Mech Eng 93:458-63 Ag '19

**Front ends**

Design of ash pan and draft appliances. Ry Age 66:1329-30 My 30 '19; Same. Ry Mech Eng 93:440-1 J1 '19

Economy locomotive front end. *il* diags Ry R 64:319-21 Mr 1 '19

Front ends, grates and ash pans. Ry Age 66:1315-16 My 30 '19; Same. Ry Mech Eng 93:576-7 O '19

*See also* Locomotives—Piping

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## Fuel

- Anthracite silt as a locomotive fuel. *il* Ry R 62:357-6 J 15 '18
- Burning anthracite coal on Lehigh Valley locomotives. Ry R 62:45-6 J 5 '18
- Certain essentials of fuel economy. E. McAuliffe. Ry Age 66:1254-5 My 23 '19; Same. Ry R 64:762-3 My 24 '19; Same. Ry Mech Eng 93:584 O '19
- Circular of fuel conservation section of Railroad administration. Ry Age 65:329-40 Ag 23 '18
- Co-operative research and the fuel problem. O. S. Beyer, jr. Ry Mech Eng 93:443-4 J 1 '19
- Cost of locomotive fuel in 1917. Ry Age 65:723 O 25 '18; Same. Ry R 63:797 N 16 '18
- Economical use of coal in railway locomotives. *il* diags *Ill U Eng Exp Sta Circ* 8:1-71 '18
- Effective methods of reducing the coal bill. H. C. Woodbridge. Ry Age 65:533-5 O 24 '19
- Equated tonnage and fuel consumption. R. N. Begien. Ry Mech Eng 93:464 Ag '19
- Fuel conservation on the Northern Pacific. M. A. Daly. *il* Ry Age 66:1037-9 Ap 25 '19; Same. Ry Mech Eng 93:237-9 My '19, Same *abr.* Ry R 64:868-9 J 14 '19, Discussion. Ry Age 66:1039-40 Ap 25 '19; Same. Ry Mech Eng 93:239-40 My '19
- Fuel conservation on the Santa Fe. C. E. Parks. Ry R 63:124-7 J 1 27 '18
- Fuel economy—abstracts of committee report of Traveling engineers' association. Ry Age 65:501-3 S 13 '18; Ry R 63:402-3 S 14 '18
- How can coal be saved on the engine? Ry Age 65:136-7 J 1 19 '18
- Important phases of the fuel conservation problem; suggestions to railway men. H. C. Woodbridge. Ry Age 65:335-6 Ag 23 '18
- Important points in fuel conservation. R. Collett. Ry Age 65:1121-3 D 20 '18; Same cond. Ry Mech Eng 93:66-7 F '19
- Individual fuel performance records, Baltimore & Ohio R.R. W. L. Robinson. Ry R 62:205-9 F 9 '18; Same cond. Ry Age 63:1131-6 D 21 '17
- International railway fuel association 11th annual convention, Chicago. Ry Age 66:1248-56, 1309-17 My 23-30 '19; Ry R 64:755-9, 791-6 My 24-31 '19
- Lame engines and their effect on fuel consumption. J. W. Hardy. Ry Mech Eng 93:515-16 S '19
- Locomotive fuel economy. Ry R 65:27-9 J 1 5 '19
- Locomotive fuel losses at terminals. J. M. Nicholson. Ry R 64:752-4 My 24 '19; Same cond. Ry Mech Eng 93:524-5 S '19
- Lopulco mixer and feeder for powdered coal. *diag* Ry R 63:29 J 6 '18
- Methods employed to aid fuel conservation. Ry R 62:718-20 My 18 '18
- Motive power department and fuel economy. R. Quayle. Ry R 62:750-2 My 25 '18; Same cond. Ry Age 64:1290-1 My 24 '18; Same cond. Ry Mech Eng 92:352-3 J 18 '18
- New Haven saves a million dollars in fuel. Ry Age 64:207-8 J 1 25 '18; Same. Ry R 62:178-80 F 2 '18
- Powdered fuel burning apparatus for an Australian railway. *il* diags Ry R 64:457-9 Mr 22 '19
- Progress in locomotive fuel economy. H. B. Oatley. Ry R 63:160-1 Ag 3 '18
- Pulverised coal on American locomotives. *il* diags Engineer 126:156-7, 174-6 Ag 23-30 '18
- Pulverised fuel equipment for locomotives. *il* *diag* Ry Age 67:519-20 S 12 '19
- Pulverised fuel for the railways. W. D. Wood. Power 50:516-17 S 23 '19
- Pulverised fuel in locomotive and marine service. J. E. Muhlfeld. Mech Eng 41:752-4 S '19; Same *abr.* Ry R 65:513-14 O 4 '19
- Pulverised fuel locomotive. *il* diags (supp) plan Engineer 127:400-2 Ap 25 '19
- Railroad fuel conservation campaign quickened. E. McAuliffe. Ry R 63:278-9 Ag 24 '18
- Relation of locomotive maintenance to fuel economy. F. McManamy. Ry R 62:752-4 My 25 '18; Same. Sci Am S 56:11 J 1 6 '18; Same cond. Ry Age 64:1259-90 My 24 '18
- Report of Master mechanics' association committee on fuel economy and smoke prevention. Ry Age 64:1516-19 J 21 '18
- Saving coal. G. M. Basford. Ry R 64:625 Ap 26 '19
- Suggestions for fuel saving. B. J. Feeny. Ry Mech Eng 93:67-9 F '19
- Teamwork of engineers. M. A. Daly. Ry R 64:845-6 J 7 '19, Same cond. Ry Mech Eng 93:422 J 1 '19
- Transportation department and fuel economy. E. H. DeGroot, jr. Ry Age 64:1231-2 My 24 '18; Same. Ry R 62:754-5 My 25 '18
- Use of pulverized fuel for locomotive operation. V. Z. Caracista. *il* diags Gen Elec R 20:553-9 N '17; Same. Ry R 61:753-7 D 29 '17
- Use of pulverized fuel on locomotives. J. E. Muhlfeld. Am Soc M E J 39:760-1 S '17; Same. Locomotive 31:240-2 O '17; Same cond. Mach 24:133 O '17
- Use of wood in logging locomotives. Am Lumberman 2252:53 J 13 '18; Same cond. Ry R 63:105-6 J 1 20 '18
- Utilization of anthracite culm. M. S. Hachita. *il* Coal Age 13:446-9 Mr 9 '18
- Who wastes the fuel? Ry Age 64:305-6 F 8 '18; Discussion. 64:442, 696 Mr 1, 22 '18

## Testing

- Comparative tests of six sizes of Illinois coal on a Mikado locomotive. E. C. Schmidt, J. M. Snodgrass and O. S. Beyer, jr. *il* diags *Ill U Eng Exp Sta Bul* 101:1-97 '17; Same cond. Ry Age 63:51-6 J 13 '17; Same cond. Ry Mech Eng 92:80-2 F '18

## Gearing

- Lewis power reverse gear. *il* *diag* Ry Age 63:1184-5 D 28 '17; Same. Ry Mech Eng 91:707-8 D '17

## Inspection

- Federal locomotive inspection 6th annual report; abstracts. Ry Mech Eng 91:680-2 D '17; Ry Age 63:1077-9 D 14 '17; Ry R 62:8-10 J 1 5 '18
- I. C. C. revises locomotive inspection rules. Ry Mech Eng 93:235-6 My '19
- 7th annual report of chief inspector of locomotive boilers. F. McManamy. chart Ry Age 65:1125-6 D 20 '18; Same. Ry R 63:907-9 D 28 '18; Same. Ry Mech Eng 93:135-6 Mr '19
- See also Locomotive boilers

## Lubrication

- Carbonizing in valve chambers and cylinders. F. P. Roesch. diags Ry R 65:30-3 J 1 5 '19
- Difficulties of locomotive lubrication; report of committee of Traveling engineers' association. Ry R 62:478-80 Mr 30 '18
- Grease lubrication of locomotive driving wheel hubs. *il* *diag* Ry Mech Eng 93:446 J 1 '19
- Locomotive force feed lubricator. diags Ry R 64:943-4 J 21 '19
- Locomotive lubrication. W. J. Schlacks. Ry R 63:914-15 D 28 '18; Same cond. Ry Age 65:1040 D 13 '18
- Rod lubrication. diags Ry Mech Eng 92:288-9 My '18
- Schlacks system of forced feed lubrication for locomotives. *il* Ry R 63:364-5 S 7 '18
- Truck box lubricator. diags Ry Mech Eng 92:425-6 J 1 '18

## Manufacture

- Milling practice in locomotive shops. E. K. Hammond. *il* diags Mach 25:1122-5 Ag '19
- Molding a superheater locomotive cylinder. R. H. Palmer. *il* diags Foundry 46:205-9 My '18
- Rushing new locomotives at Baldwin and American plants. Iron Age 101:333 J 1 31 '18
- Tools for locomotive-valve parts. F. A. Stanley. *il* diags Am Mach 50:1119-22 J 12 '19

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## Painting

Painters must protect equipment. Ry Mech Eng 92:33-40 Ja '13

## Performance

Arithmetic of railroad operation. W. J. Cunningham. Ry R 64:355-7 Mr 8 '19  
Combining statistics of fuel performance and locomotive loading. Ry Age 66:1423-4 Je 13 '19  
Graphical representation of locomotive performance. H. Holcroft. Engineer 125:353-5, 376-9 Ap 26-May 3 '18  
Performance of decapod locomotives, Pennsylvania railroad. Ry R 64:31-2 Ja 13 '19  
Winter temperatures and locomotive capacity. W. L. Bean. Ry Age 64:539-41 Mr 15 '18

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Location of train pipes on the front of the locomotive. H. Sneek. diags Ry Mech Eng 93:236 My '19  
Method of applying outside steam pipes. Il Ry Mech Eng 92:119 F '18  
Reducing exhaust nozzles to overcome front end air leaks. F. P. Roesch. Ry Mech Eng 93:130 Jl '19  
Steam pipe-smoke arch seals. diags Ry R 65:565 O 18 '19

## Rating

Steam vs. electric locomotives. A. J. Manson. Ry Mech Eng 93:133-5 Mr '19  
Tonnage rating chart for the standard light mountain type locomotive. Ry Age 66:1195 My 16 '19  
Tonnage rating charts for standard Pacific type locomotives. diags Ry Age 66:1216-18 My 16 '19  
Tonnage rating of the standard locomotives. H. S. Vincent. charts Ry Age 65:627-31 O 4 '18  
Tractive effort and horse-power of locomotives. Sci Am S 85:44-5 Ja 19 '18  
Tractive effort of Mallet locomotives. Ry Age 65:764 N 1 '18

## Repair

Accuracy in locomotive repairs. M. H. Williams. diags Ry Mech Eng 92:673-7 D '18  
Arc welding in railroad shops. B. C. Tracy. Il diags Gen Elec R 21:887-98 D '18  
Autogenous welding at Albuquerque. H. L. Hahn. diags Ry Mech Eng 93:271-2 My '19  
Autogenous welding at Sayre shops, Lehigh Valley R. R. Ry R 62:855-6 Je 15 '18  
Breakdown of our railway transportation; neglect of motive power maintenance the key to the situation. Il Sci Am S 85:344-5 Je 1 '18  
Efficient machine for finishing crown stays. Il diags Ry Mech Eng 92:519-20 S '18  
Electric welding. H. A. Currie. Il Ry Age 67:926-8 N 7 '19  
Firebox repairs. G. Austin. diags Ry Mech Eng 92:217-18 Ap '18  
How can the Traveling engineers best aid in the maintenance of locomotives. F. P. Roesch. Ry Age 65:497-8 S 13 '18; Same Ry Mech Eng 92:552-3 O '18  
Locomotive firebox and boiler maintenance and repairs; abstracts. G. Austin. Ry R 62:294-8 Mr 2 '18; Ry Age 64:467-9 Mr 1 '18; Ry Mech Eng 92:161-3 Mr '18  
Locomotive maintenance problems; information contributed by railway officials. diag Ry Mech Eng 92:33-7 Ja '18  
Locomotive repair shop output. H. Gardner. Ry Mech Eng 93:335-7 Je '19  
Locomotive repairs; methods employed on the Grand Trunk Ry. E. R. Battley. Ry R 62:513-14 Ap 6 '18  
Most pressing need; locomotive repair facilities. Ry R 62:243-4 F 16 '18  
Oxy-acetylene and electric welding and cutting processes in locomotive works. A. F. Dyer. Eng & Contr 49:93-4 Ja 23 '18; Same. Ry R 62:197-9 F 9 '18; Same cond. Ry Mech Eng 92:571-2 O '18

Oxy-acetylene welding problems. W. L. Bean. Il diag Ry Mech Eng 93:97-100 F '19; Same cond. Ry R 64:513-15 Ap 5 '19  
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Repairing foreign locomotives. Ry Mech Eng 92:345-9 Je '18  
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*See also* Die sinking machines; Gear cutting machines; Machine tools; Milling cutters

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**Milwaukee, Wisconsin**

Foundry, metal working and allied industries in Milwaukee and vicinity; *Hst. map Iron Age* 102:822-5 *O* 3 '18

Industrial power consecrated to country. *G. H. Manlove. Il Iron Tr R* 63:sup100-7 *O* 3 '18

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Milwaukee foundries serve all industry. *D. M. Avey. Il Iron Tr R* 63:sup109-15 *O* 3 '18

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Welcomes great army of foundrymen. *Il Foundry* 46:471-83 *O* '18

**Rapid transit**

Zone fares have been found satisfactory in Milwaukee. *Il map Elec Ry J* 54:613-20 *S* 27 '19

**Sewerage**

Conclusions on activated-sludge process. *T. C. Hutton. Eng N* 79:840-4 *N* 1 '17; *Same cond. Munic Eng* 53:243-6 *D* '17

**Streets**

Resurfacing of old macadam streets in Milwaukee. *C. J. Van Etta. Il Munic Eng* 57:195-6 *N* '19

**Water supply**

Find cause of obnoxious tastes in Milwaukee water. *H. P. Bohmann. Eng N* 82:181-2 *Ja* 23 '19; *Same. Eng & Contr* 51:529-30 *Je* 11 '19

Milwaukee electric railway and light company Both parties rebuked in Milwaukee. *Elec Ry J* 53:976 *My* 17 '19

Milwaukee school of engineering. *See* School of engineering of Milwaukee

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British mine accidents and their causes. *Coal Age* 14:1164-5 *D* 26 '18

Careful records reduce mine accidents. *A. H. Fay. Coal Age* 14:503-4 *S* 12 '18; *Excerpts. Eng & Min J* 106:699-701 *O* 19 '18

Fatalities in mineral industry in 1916. *A. H. Fay. Eng & Min J* 104:1086 *D* 22 '17

Fatality rates in Pennsylvania mines. *chart. Coal Age* 13:822 *My* 4 '18

Forms for use in recording compensation. *Coal Age* 14:506-8 *S* 12 '18

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Legal decisions on mine shaft accidents. *C. C. Sherlock. Eng & Min J* 106:341 *Ag* 24 '18

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Mine accidents. *F. G. Jarrett. Coal Age* 14:262-3 *Ag* 5 '18

Standardization of first-aid methods. *C. H. Connor. Coal Age* 14:725-9 *O* 17 '18

Standardization of mine accident reports and statistics. *Eng & Min J* 105:1165 *Je* 29 '18

Utilization of mine-accident reports. *D. E. Charlton. Eng & Min J* 106:945-8 *N* 30 '18

Who gets hurt and when? *Coal Age* 14:480-2 *S* 12 '18

*See also* Coal mines and mining—Accidents and explosions; Coal mines and mining—Safety measures; Firedamp; Mine cars; Mine explosions; Mine fires; Mine rescue work; Mining engineering—Safety measures; Safety lamps

**Mine accounting**

Accounting of materials. *Coal Age* 14:417, 754-5, 956-8; 15:66 *Ag* 29, *O* 17, *N* 21 '18, *Ja* 9 '19

Correct accounting. *Coal Age* 15:248, 501-2 *Ja* 30, *Mr* 13 '19

Cost accounting at coal mines. *J. B. Dilworth. Coal Age* 13:874-6 *My* 11 '18

Cost accounting in mine haulage. *Coal Age* 14:876-7, 1175 *N* 7, *D* 26 '18

Cost keeping for small metal mines. *J. C. Pickering. U S Bur Mines Tech Pa* 223:1-46 '19

Daily cost sheets for mine managers. *E. B. Wilson. Coal Age* 12:1051-2 *D* 22 '17

Development period of a mine. *H. H. Stoek. Coal Age* 14:1076-7 *D* 12 '18

Uniform cost sheet. *Coal Age* 14:545-7 *S* 19 '18

What price should the coal operator charge the boiler-room coal account? *C. W. Hipard. Coal Age* 15:955 *My* 22 '19

**Mine air**

Available oxygen. *Coal Age* 15:1177 *Je* 26 '19

Dew point in mine air. *Coal Age* 15:831 *My* 1 '19

Methane accumulations from interrupted ventilation, with special reference to coal mines in Illinois and Indiana. *H. I. Smith and R. J. Hamon. Il diags U S Bur Mines Tech Pa* 190:1-42 '18

Sampling of dust in mine air. *J. Boyd. diags Eng & Min J* 107:395-6 *Mr* 1 '19

*See also* Mine gases; Mine ventilation

**Mine buildings**

Dallas change house at Bisbee, Ariz. *diag Eng & Min J* 105:20 *Ja* 5 '18

Ideal changehouse. *F. M. Heidelberg. diag plan Eng & Min J* 103:389-90 *Mr* 3 '17

Mine bathhouses in Utah. *A. C. Watts. Il diags plan Coal Age* 15:4-8 *Ja* 2 '19

Overhead hanging arrangement for clothes. *Il Eng & Min J* 108:243 *Ag* 9 '19

Strong background for community work is formed by bathhouses and laundries. *D. J. Baker. Il Coal Age* 16:634-7 *O* 16 '19

*See also* Miners' houses

**Mine cages.** *See* Mine hoisting**Mine car retarders**

Efficient car retarder. *R. L. Mayer. diag Coal Age* 16:44 *JI* 10 '19

Readily constructed mine car retarder. *diags Coal Age* 13:816-17 *My* 4 '18

**Mine cars**

Advantages of standardization of mine cars. *H. V. Brown. Il Coal Age* 15:793 *My* 1 '19

Automatic car-door opener saves lots of time in dumping cars. *R. W. Mayer. diag Coal Age* 16:479 *S* 18 '19

Automatic drop-bottom mine car. *diags Engineer* 124:457 *N* 23 '17

Coal production and lubrication. *R. Traut-schold. Coal Age* 14:175-6 *JI* 25 '18

Cost of upkeep of mine cars. *Coal Age* 14:918, 1174-5; 15:460-1 *N* 14, *D* 26 '18, *Mr* 6 '19

**Mine cars—Continued**

- Effect of anti-friction bearings on the haulage of a coal mine. P. B. Liebermann. *Am Inst Min E Bul* 127:1051-62 *Jl* '17; Discussion. 123:14-15 *Ja* '18
- Fluid-controlled check rail device. *il* diags *Coal Age* 16:448 *S* 11 '19
- Frozen mine-car journals. M. Ashley. *Coal Age* 13:757 *Ap* 20 '18
- Iron vs. wood mine cars. *Coal Age* 14:793-4, 913, 960, 999-1000, 1045-6, 1174; 15:157, 461-2 *O* 24, *N* 14-28, *D* 5, 26 '18, *Ja* 16, *Mr* 6 '19
- Lubricating mine cars. *Coal Age* 15:377, 768 *F* 20, *Ap* 24 '19
- Lubrication as an aid in stimulating coal production. R. Trautschold. *Coal Age* 13:1112-13 *Je* 15 '18
- Maximum production for humanity's sake. H. K. Porter. *il* *Coal Age* 14:97-8 *Jl* 20 '18
- Mine-car axles. B. P. Lieberman. *il* *Coal Age* 14:219-22 *Ag* 1 '18
- Mine car chocks. diags *Coal Age* 14:973 *N* 28 '18
- Mine-car door. V. C. Robbins. *Coal Age* 13:1031 *Je* 1 '18; Discussion. 13:1124-5, 1171-2; 14:75, 140-1 *Je* 15-22, *Jl* 13-20 '18
- Mine cars; using roller-bearing cars and plain-bearing cars together. *Coal Age* 13:346, 514, 557-8, 757, 845 *F* 16, *Mr* 16-23, *Ap* 20, *My* 4 '18
- New type of mine car. *il* *Coal Age* 15:809 *My* 1 '19; Same. *Eng & Min J* 107:1088 *Je* 21 '19
- Ore car designed at Hecla mine. C. T. Rice. *il* diags *Eng & Min J* 106:522-5 *S* 21 '18
- Repairing and oiling mine cars. *Eng & Min J* 105:1173-4 *Je* 29 '18
- Roller bearings for mine cars. R. W. Harris. *Coal Age* 16:545 *S* 25 '19
- Safe powder car. H. H. Honaker. *il* *Coal Age* 16:565 *O* 2 '19
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- Self-locking pipe and timber binder for slope car. R. W. Mayer. *il* *Coal Age* 13:1044-5 *Je* 8 '18
- Simple car chock. diags *Coal Age* 14:1104 *D* 19 '18
- Standardization of mine cars in metal mines. R. M. Raymond. diags *Eng & Min J* 107:220-4 *F* 1 '19
- Steam-shovel ore cars at New Cornelia, Ajo, Ariz. diags *Eng & Min J* 105:416-17 *Mr* 2 '18
- Two-ton car and tippie. diags *Eng & Min J* 104:1006 *D* 8 '17
- Use of side board in loading cars. H. H. Hunner. diags *Eng & Min J* 106:223 *Ag* 3 '18
- See also* Mine haulage
- Mine construction**
- Concrete and tile lining for headings. *il* diags *Coal Age* 13:317 *F* 16 '18
- Novel brick and concrete work. *il* *Coal Age* 14:780-1 *O* 24 '18
- See also* Headframes; Mine buildings; Mine roofs; Mine shafts; Mine timbering; Mine tipples
- Mine costs.** *See* Mining costs
- Mine doors**
- Automatic doors for colliery haulage ways. diags plan *Engineer* 127:378 *Ap* 18 '19
- Finding a mine door set open. *Coal Age* 16:462, 626-8, 660-1 *S* 11, *O* 9-16 '19
- Mine door protector. diags *Coal Age* 16:88 *Jl* 17 '19
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- Discharging water from mining plants; mine owner's liability. C. C. Sherlock. *Eng & Min J* 107:311-12 *F* 15 '19
- How the drainage problem of Edna no. 2 mine was solved. D. J. Baker. *il* *Coal Age* 16:484-5 *S* 11 '19
- Keeping water out of chutes. C. T. Rice. diags *Eng & Min J* 106:66 *Jl* 13 '18
- Roosevelt deep drainage tunnel finished. C. B. Harpole. *il* diags *Sci Am* 120:331-4 *Ap* 5 '19
- Siphon to unwater a mine. J. A. MacDonald. diags *Eng & Min J* 105:599-600 *Mr* 30 '18
- Unusual method of drainage. map *Coal Age* 13:281 *F* 9 '18
- Water drain for wet roof. R. H. Poston. diags *Eng & Min J* 108:324 *Ag* 23 '19; Same. *Eng & Contr* 52:324 *S* 17 '19; Same. *Coal Age* 16:575 *O* 2 '19
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- Dust abatement in mines. W. O. Borchardt. *Eng & Min J* 106:783-6 *N* 2 '18
- Dust prevention in Transvaal mines. A. C. Whitmore and J. H. Veasey. *Eng & Min J* 106:249-53 *Ag* 10 '18
- Sampling of dust in mine air. J. Boyd. diags *Eng & Min J* 107:395-6 *Mr* 1 '19
- Mine employees.** *See* Mine firebosses; Mine foremen; Miners
- Mine equipment**
- New type of tire expander for use in coal mines. *il* *Coal Age* 15:187 *Ja* 23 '19
- Standardization of mining methods; standard equipment. C. A. Mitke. diags *Eng & Min J* 106:1071-4 *D* 21 '18
- See also* Electricity in mining; Mine cars; Mine doors; Mine hoisting; Mining machinery
- Mine explosions**
- Air blasts in the Kolar gold field, India. E. S. Moore. *Am Inst Min E Bul* 135:687-94 *Mr* '18; Same cond. *Eng & Min J* 105:957-9 *My* 25 '18; Discussion. *Am Inst Min E Bul* 142:1542-53; 144:1765-6 *O*, *D* '18
- Current velocity re mine explosion. J. Verner. diags *Coal Age* 15:876-7 *Ap* 10 '19
- Effect of the velocity of ventilating current upon mine explosions. G. S. Rice and W. L. Eby. diags *Coal Age* 15:308-9 *F* 13 '19
- Latest mine holocaust in Pennsylvania. *Eng & Min J* 107:1058-9 *Je* 14 '19
- Nature of mine explosions. H. E. Gray. diags *Coal Age* 13:930-1 *My* 18 '18; Discussion. J. Ashworth. 13:1170-1 *Je* 22 '18
- What caused the explosion? *Coal Age* 13:645, 933, 1126 *Ap* 6, *My* 25, *Je* 15 '18
- See also* Coal dust; Coal mines and mining —Accidents and explosions; Mine accidents; Mine fires; Mine gases
- Mine fans.** *See* Fans, Mine
- Mine firebosses**
- Alabama firebosses' examination Birmingham, Jan. 20-23, 1919. diags plan *Coal Age* 15:729 *Ap* 17 '19
- Bituminous (Penn.) firebosses' examination, April 11, 1919. *Coal Age* 15:1181; 16:33 *Je* 26-*Jl* 3 '19
- Cooperation between firebosses and assistant foremen. A. T. Dickson. *Coal Age* 16:528-9 *S* 25 '19
- Efficiency in firebossing. *Coal Age* 14:1133-4; 15:199-200, 245-6, 417-18, 462-3, 589-90, 679-80, 727, 767-8, 829-30 *D* 19 '18, *Ja* 23-30, *F* 27, *Mr* 6, 27, *Ap* 10-*My* 1 '19
- Examination of a mine. *Coal Age* 12:1069-70; 13:256, 431, 472, 600, 643-4 *D* 22 '17, *F* 2, *Mr* 2-9, 30-*Ap* 6 '18
- Firebosses as state officials. *Coal Age* 15:544-5, 726, 876, 919, 1178-9; 16:31, 119, 245-6, 334-5 *Mr* 20, *Ap* 17, *My* 8-15, *Je* 26-*Jl* 3, 17, *Ag* 7, 21 '19
- See also* Mine inspection
- Mine fires**
- Disastrous mine fire at Villa, W. Va. *Coal Age* 13:1106 *Je* 15 '18
- Engineering problems encountered during recent mine fire at Utah-Apex mine, Bingham Canyon, Utah. V. S. Rood and J. A. Norden. diags *Am Inst Min E Bul* 138:1093-1104 *Je* '18
- Fire prevention in anthracite coal mines. M. W. Price. *Coal Age* 16:651-2 *O* 16 '19
- Hydraulic-filling method to extinguish fires in Butte mines. *Eng & Min J* 104:1026 *D* 15 '17
- Measures for controlling fires at the Copper Queen mine. G. Sherman. diags plan *Am Inst Min E Bul* 133:169-73 *Ja* '18; Excerpt. *Eng & Min J* 105:559-60 *Mr* 23 '18; Discussion. *Am Inst Min E Bul* 136:807-8 *Ap* '18
- Mudding coal at St Eloy, France. M. A. Plaisard. diags plan *Coal Age* 15:266-9 *F* 6 '19
- Sealing off fire on intake. *Coal Age* 13:1173; 14:33, 79, 143, 187-9, 236, 285-6, 373-4 *Je* 22, *Jl* 6-*Ag* 8, 22 '18



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Standardization of mining methods; fire protection for metal mines. C. A. Mitke. *il* diags plan Eng & Min J 106:1025-30 D 14 '18

See also Firedamp, Mine accidents; Mine explosions; Safety lamps

**Mine foremen**

Bituminous (Penn.) mine foremen's examination, April 8-10, 1919. Coal Age 15:881, 925 My 8-15 '19

Certification and safety. Coal Age 15:374-5, 766-7, 1010-11, 1094, 1177-8; 16:29-31, 68-9, 203, 245, 288-9 F 20, Ap 24, My 29, Je 12, 26-Jl 10, 31-Ag 14 '19

Coöperation between firebosses and assistant foremen. A. T. Dickson. Coal Age 16:528-9 S 25 '19

Corporal in every squad of eight. Coal Age 14:608-9 S 26 '18

Holding men in the mine. W. H. Noone. Coal Age 13:1168 Je 22 '18

Let the operator get on the job. Coal Age 14:185, 656-7, 793, 1002-3, 1047-8, 1176-7 Jl 25, O 3, 24, N 28, D 5, 26 '18

Perplexities of mine foremen. Coal Age 14:656-7, 793, 1002-3, 1047-8, 1176-7; 15:31, 247, 291-2, 334, 375-6 O 3, 24, N 28, D 5, 26 '18, Ja 2, 30-F 20 '19

Prime producer in a coal mine. Coal Age 15:637, 1011, 1137; 16:459-60 Ap 3, My 29, Je 19, S 11 '19

Problem of the mine foreman. Eng & Min J 107:206 Ja 25 '19

Qualified mine foremen. Coal Age 12:591-2, 690, 734-5, 776-7, 821-2, 903-4, 1071, 1112 O 6, 20-N 10, 24, D 22-29 '17

Selecting mine foremen. J. Lawrence. Coal Age 14:776 Jl 13 '18

Standardize the mine foreman. G. E. Daugherty. Coal Age 12:1108-9 D 29 '17

Tennessee foremen's examination held at Nashville, Sept. 1919; selected questions and answers. Coal Age 16:694 O 23 '19

Tennessee mine foremen's examination, 1918. *diag* Coal Age 13:1129, 1174 Je 15-22 '18

Test of a man's capability. Coal Age 12:380, 642, 860-1; 13:73-4 S 1, O 13, N 17 '17, Ja 12 '18

Utah mine foremen's examination. Coal Age 13:434 Mr 2 '18

West Virginia examination (1918) mine foreman and firebosses. Coal Age 14:757 O 17 '18

When your neighbor is angry. Coal Age 14:654 O 3 '18

See also Mine management

**Mine gases**

Barometer vs. outflow of gas. Coal Age 15:634, 1009-10; 16:159-61, 502-3 Ap 3, My 29, Jl 24, S 18 '19

Bumps and outbursts of gas in the Crowsnest Pass coal field. G. S. Rice. *diags* maps Coal Age 15:660-5 Ap 10 '19

Chart of properties of mine gases. G. A. Burrell. '18 U.S. Bur. mines, Washington, D.C.

Clearing a heading of gas. Coal Age 12:823, 990, 1027; 13:31-2, 159, 302, 348, 388 N 10, D 8-15 '17, Ja 5, 19, F 9-23 '18

Conservation of mine gas. Coal Age 12:1029-30; 13:2120-12, 345-6 D 15 '17, Ja 26, F 16 '18

Detection of mine gas. Coal Age 13:984 My 25 '18

Effect of breaking of coal on the emission of gas. R. Dunn. Coal Age 16:20 Jl 3 '19

Gas encountered reopening mine. Coal Age 13:894 My 11 '18; Discussion. J. Touhey. 13:1125-6 Je 15 '18

Limits of complete inflammability of mixtures of mine gases and of industrial gases with air. G. A. Burrell and A. W. Gauger. *diag* Sci Am S 86:236 O 12 '18

Methanephone. Coal Age 13:579 Mr 30 '18

Occlusion of explosive gases in coal. J. Ashworth. Coal Age 14:990-1 N 28 '18

Outbursts of gas in Crowsnest field. J. Ashworth. *diags* plan Coal Age 14:443-6 S 5 '18

Overcome on reaching fresh air. Coal Age 14:35 Jl 6 '18

Results of analysis of airs from a mine fire. A. G. Blakeley and H. E. Geist. J Ind & Eng Chem 10:552-3 Jl '18

Science and research in coal mining. G. W.

Harris. Coal Age 15:17-19 Ja 2 '19

Testing for gas in mines. H. E. Gray. *diags* Coal Age 14:217-18 Ag 1 '18

Utilizing mine gas to save fuel. Coal Age 15:372-3, 586 F 20-27 '19

See also Blackdamp; Carbon monoxide; Firedamp; Mine explosions; Mine ventilation

**Mine haulage**

Anchoring the bullwheel of 3500-horsepower haulage. R. W. Mayer. *diags* Coal Age 16:19 Jl 3 '19

Back to rope haulage. F. A. Pocock. Coal Age 12:1044-5 D 22 '17

Block signal system for coal mines. F. Huskinson. *diags* Coal Age 13:57-9 Ja 12 '18

Coefficient of rolling friction. Coal Age 16:28-9 Jl 3 '19

Cost accounting in mine haulage. Coal Age 14:876-7, 1175 N 7, D 26 '18

Counterbalanced room haulage that saves considerable man-power. J. M. Roddy. *diags* Coal Age 13:47 Ja 12 '18

Determination of the proper size of storage-battery locomotive. D. C. Ashmead. Coal Age 14:548-52 S 19 '18

Device for stopping runaway mine train. *diag* Eng & Min J 106:538-9 S 21 '18

Effect of anti-friction bearings on the haulage of a coal mine. P. B. Liebermann. Am Inst Min E Bul 127:1051-62 Jl '17; Discussion. 133:14-15 Ja '18

Efficiency in underground haulage. C. E. Bowron. Coal Age 16:360-1 Ag 28 '19

Efficient haulage methods. P. Teas. *il* Coal Age 14:106-8 Jl 20 '18

Efficient locomotive haulage depends a great deal on motorman. E. Steck. Coal Age 15:479 Mr 13 '19

Electric drive for rope haulage. Coal Age 14:191 Jl 25 '18

Electric mine haulage. T. O. Hughes. Coal Age 14:233-4 Ag 1 '18

Electrically interlocked car haul and car feeder. R. P. Hines. *il* *diag* Coal Age 14:300-2 Ag 15 '18

Engine-plane haulage. Coal Age 15:293, 545-6, 723-4 F 6, Mr 20, Ap 17 '19

Estimating power in haulage. Coal Age 14:615 S 26 '18; Correction. 14:833 O 31 '18

Gravity-plane haulage. Coal Age 15:32, 459, 827-8 Ja 2, Mr 6, My 1 '19

Hauling capacity of storage-battery locomotives. Coal Age 14:660 O 3 '18; Discussion. H. K. Porter. 14:958-9 N 21 '18

Homemade dirt motor. *il* *diag* Coal Age 13:401 Mr 2 '18

Improving top-landing haulage equipment. L. C. Moore. *il* *diags* Eng & Min J 108:324-5 Ag 23 '19

Interesting mine haulage proposition. J. H. Dickerson. *diag* Coal Age 15:1058 Je 5 '19

Large coal mine adopts electric power for hauling. W. P. Potter. *il* Elec R 74:631 Ap 19 '19

Linking up isolated mineral districts by the loco-tractor transport system. F. Dutton. *il* Eng & Min J 107:313-14 F 15 '19

Markers on mine trips. Coal Age 16:503, 543-4 S 18-25 '19

Maximum grade in motor haulage. Coal Age 16:249 Ag 7 '19

Mine-haulage proposition. *diag* Coal Age 16:27-8, 70-2, 202-3, 417-18 Jl 3-10, 31, S 4 '19

Mule power in mine haulage. Coal Age 15:293, 503 F 6, Mr 13 '19

Novel self-acting plane. J. A. Smith. *diag* Coal Age 12:885 N 24 '17; Same. Eng & Min J 105:164-5 Ja 19 '18

Pneumoelectric haulage and loading equipment. E. M. Mackie. *il* *diag* Coal Age 14:120-1 Jl 20 '18

Power required in electric haulage. Coal Age 12:865, 987-8 N 17, D 8 '17

Resistance of mine-track curves. Coal Age 16:589 O 2 '19

Safeguards in trolley haulage. Coal Age 15:71, 502-3 Ja 9, Mr 13 '19

Speeding up mining in shallow drifts. G. H. Kirchgasser. *il* *diag* Coal Age 14:202-3 Ag 1 '18

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- Substantial rope guide. R. W. Mayer. diag Coal Age 12:661 D 8 '17  
 Vesta coal co.'s modern system of mine haulage. R. W. Mayer. il Coal Age 15:1072-6 Je 12 '19  
 Work and strength of a mine mule. Coal Age 16:379 Ag 23 '19  
*See also* Locomotives, Mine; Mine cars; Mine hoisting; Mine tipples; Mine tracks

**Cost**

- Cost of mule and locomotive haulage. W. L. Cross, jr. Coal Age 15:439-40 Mr 6 '19

**Mine hoisting**

- Breaking of cable in protection shaft. R. Dunn. diags Coal Age 15:489-91 Mr 13 '19  
 Cage chairs for shaft landings. W. F. Fancy. diags Eng & Min J 104:1005 D 8 '17  
 Converting scrap into a sinking hoist. Eng & Min J 106:453-4 S 7 '18  
 Dog for lowering mine timbers into stopes. diags Eng & Min J 106:222-3 Ag 3 '18; Same. Coal Age 14:386 Ag 29 '18  
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 Inclined plane of the Union mining co. U. U. Carr. il plan Coal Age 15:856-7 My 8 '19  
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 Progress in the electrification of mine hoists. R. S. Sage. il Gen Elec R 22:332-41 My '19; Same. Coal Age 16:770-6 N 13 '19  
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 United eastern mine cage and skip. B. C. Staiger. diags plan Eng & Min J 106:880 N 16 '18

*See also* Dumping appliances; Hoisting machinery; Mine cars; Mine haulage; Wire rope

**Safety devices and measures**

- Controlling apparatus for elevators and other devices. H. Goodnow. diag Coal Age 16:406-7 S 4 '19  
 Increasing cage safety. T. Price. il Coal Age 15:570 Mr 27 '19  
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**Naphthalene**

Abrupt condensation of naphthalene. Gas Age 42:430 N 15 '18

Naphthalene; discussion. Met & Chem Eng 17:570, 681 N 15, D 15 '17

Solubility of naphthalene in ammonia. Gas Age 41:28-30 Ja 1 '18

Standardized method for the determination of solidification points, especially of naphthalene and paraffin. R. M. Wilhelm and J. L. Finkelstein. diags U S Bur Stand Sci Pa 340:185-97 '19

Use of crude naphthalene as fuel for internal combustion engines. Sci Am S 86:205 S 28 '18

**Narrow gage railroads.** *See* Railroads, Narrow gage

**Nashville, Tennessee**

**Architecture**

Architecture of Nashville. il Am Inst Arch J 7:159-70 Ap '19

Views of Nashville, Tenn. Am Inst Arch J 7:251-8 Je '19

**Natalite**

Natalite fuel. H. A. Findley. Automotive Ind 40:59 Ja 9 '19

New engine fuels. Sci Am 119:194 S 7 '18

**National academy of design**

Leadership in art. H. R. Butler. Am Arch 115:341-2 Mr 5 '19

**National Acme company, Cleveland, Ohio**

New National Acme screw products plant. il Mach 26:120-2 O '19

**National advisory committee for aeronautics.**

*See* United States—National advisory committee for aeronautics

**National alliance of employers and employed**

Reconstruction. A. H. Paterson. Engineer 125: 215 Mr 8 '18

**National association building.** *See* Office buildings

**National association of box manufacturers**

19th annual convention. Am Lumberman 2236: 50 Mr 23 '18

**National association of brass manufacturers**

Annual meeting, New York city, Dec. 12-13 Dom Eng 81:507 D 22 '17

Spring meeting, French Lick, Ind., March 27-28. Metal Ind 16:235 My '18

**National association of builders' exchanges**

Annual convention, Pittsburgh, Feb. 5-7. Bldg Age 40:162-3 Mr '18

- National association of corporation schools**  
Industrial democracy. F. C. Henderschott.  
Eng & Min J 108:267 Ag 16 '19  
Purpose of the association. Power 46:849 D  
18 '17  
Survey on plans for improving industrial  
relations. Elec R 75:202-3 Ag 2 '19
- National association of cotton manufacturers**  
Address. W. F. Shove. Textile World 54:2296-  
8 N 9 '18  
Annual convention, New York, April 23-25.  
2496-8+ Ap 26 '19  
Boston convention. Textile World 54:2294-8+  
N 9 '18  
Business meeting, May 3. Textile World 53:  
5144e+ My 4 '18  
Combined gathering of cotton manufacturers.  
Textile World 53:5137-40+ My 4 '18  
Completes organization. Textile World 53:5563  
My 18 '18  
Conference on war problems in the textile  
industry, Boston, Jan. 18. Textile World  
53:3449-50+ Ja 26 '18  
New president and directors; portraits. Tex-  
tile World 53:5134 My 4 '18  
New work of association. R. R. Wilson. Tex-  
tile World 53:2960 Ja 12 '18  
Reports of permanent committees. Textile  
World 53:5144i+ My 4 '18  
Reports of permanent committees on indus-  
try. Textile World 54:2309+ N 9 '18  
Some present activities. R. R. Wilson. Textile  
World 55:221+ Ja 11 '19
- National association of electrical contractors  
and dealers**  
Annual convention, Milwaukee, July 16-18.  
Elec R 75:144-8 JI 26 '19  
1st meeting under the new form of organiza-  
tion, Cleveland, July 17. Elec W 72:124,  
173-4 JI 20-27 '18; Elec R 73:134-6 JI 27 '18  
Organization of contractor-dealer association  
perfected. Elec R 72:158-9 Ja 26 '18
- National association of electrical inspectors**  
Questions on the National electrical code, with  
replies by members of the executive com-  
mittee of the National association of elec-  
trical inspectors. Elec R 72:251-2, 531-2 F 9,  
Mr 23 '18  
Reconstruction convention, Springfield, Mass.,  
Oct. 13-15. Elec W 74:848 O 18 '19; Elec  
R 75:705-8 O 25 '19
- National association of employment managers**  
Convention, Cleveland, Ohio, May 21-23. Iron  
Age 103:1442-4 My 29 '19; Am Mach 50:1103-  
4 Je 5 '19; Ind Management 57:489-503f Je  
'19
- National association of garment manufacturers**  
19th semi-annual convention, Chicago, May  
14-17. Textile World 53:5569+ My 18 '18
- National association of general contractors**  
Proposed constitution. Eng & Contr 50:388 O  
23 '18
- National association of hosiery and underwear  
manufacturers**  
4th annual meeting of the western members,  
Chicago, Dec. 12. Textile World 54:3093-4 D  
21 '18  
14th annual meeting, Philadelphia, May 20-23;  
list of those present. Textile World 53:5713-  
18+ My 25 '18  
15th annual convention, Philadelphia, June  
3-5. Textile World 55:3459-60+ Je 7 '19  
Knitting arts exhibition in Philadelphia. II  
Textile World 53:5751-66 My 25 '18  
List of exhibitors at the exhibition in Phil-  
adelphia. plans Textile World 53:5566-8 My  
18 '18
- National association of manufacturers**  
23d annual convention, May, 1918, with ab-  
stracts of reports. Am Ind 18:7-19 Je '18  
24th annual convention, New York city, May  
19-21. Am Ind 19:7-17 Je '19
- National association of master plumbers**  
Message to the master plumbers of the  
United States. F. B. Lasette. Dom Eng  
88:310-11 Ag 16 '19  
36th annual convention, St Louis, Mo., June  
4-6. Dom Eng 83:364-77 Je 8 '18; Metal  
Work 89:780-93 Je 14 '18
- 37th annual convention, Atlantic City, N. J.,  
June 17-19. Dom Eng 87:566-85, 588-96  
Je 28 '19; Metal Work 91:841-7 Je 27 '19
- National association of master steam and hot  
water fitters.** See Heating and piping con-  
tractors' national association
- National association of owners of railroad  
securities**  
Committee hearings on railway legislation.  
Ry R 65:263 Ag 23 '19  
Security owners' counsel replies to Judge  
Lovett's criticism. Ry R 65:185-90 Ag 9  
'19
- National association of purchasing agents**  
Annual convention, Detroit, Sept. 23. Auto-  
motive Ind 39:532-3 S 26 '18  
Pittsburgh convention. J. E. Schipper. Auto-  
mobile 37:675-6 O 18 '17
- National association of railroad tie producers**  
Organization. Ry Age 66:343-8 F 7 '19; Ry R  
64:178-9, 233-4 F 1-8 '19; Am Lumberman  
2282:51 F 8 '19
- National association of railway and utilities  
commissioners**  
30th annual convention, Washington, Nov. 12.  
Ry Age 65:851-8 N 15 sec 1 '18; Ry R 63:  
737-43 N 23 '18  
31st annual convention, Indianapolis, Ind.,  
October 14-16. Ry Age 67:931-9 N 7 '19;  
Elec Ry J 54:824-6 N 1 '19
- National association of real estate boards**  
12th annual convention, Atlantic City, June.  
D. K. Boyd. Arch Forum 31:51-2 Ag '19
- National association of sheet metal contractors**  
Activities of apprenticeship committee. Metal  
Work 89:72-3 Ja 11 '18  
14th annual convention, Milwaukee, June 11-  
14. Metal Work 89:820-33 Je 21 '18  
15th annual convention, Columbus, Ohio,  
June 10-13. Metal Work 91:795-801 Je 20  
'19
- National association of stationary engineers**  
Convention of the New England States asso-  
ciation, Bridgeport, Conn., July 10-13.  
Power 48:138-9 JI 23 '18  
Ohio state association annual convention, Cin-  
cinnati, Sept. 8-9. Power 48:472 S 24 '18  
36th annual convention, Cincinnati, O., Sept.  
9-13. Power 48:468-70 S 24 '18  
37th annual convention, Huntington, W.Va.,  
Sept. 2. Power 50:484 S 16 '19
- National association of stove manufacturers**  
47th annual meeting, New York, May 6-9.  
Metal Work 89:643-6 My 17 '18
- National association of waste material dealers**  
6th annual meeting, New York, March 18-19.  
Metal Ind 17:163 Ap '19
- National association of wool manufacturers**  
Annual meeting, Boston. Textile World 55:  
1036-7+ F 8 '19  
53d annual meeting, New York, Feb. 6. Tex-  
tile World 53:3694 F 9 '18
- National association of woolen & worsted  
overseers**  
37th semi-annual meeting, Philadelphia,  
June 7. Textile World 55:3656 Je 14 '19
- National association of worsted and woolen  
spinners**  
Annual meeting, New York, May 9. Textile  
World 53:5409 My 11 '18  
Second annual meeting, New York. Tex-  
tile World 55:2987 My 17 '19
- National automobile chamber of commerce**  
Annual convention of service managers, De-  
troit. Motor Age 36:7-12 N 20 '19  
Annual meeting, New York, June 6-7. Motor  
Age 33:18 Je 13 '18  
Convention, Feb. 11. Automotive Ind 40:352-3  
F 13 '19  
Truck makers war convention. Horseless Age  
43:43 Ja 15 '18; Automotive Ind 38:144-5+ Ja  
10 '18
- National automobile dealers' association**  
Annual convention, Chicago, Feb. 4-5. F. M.  
Loomis. Motor Age 35:7-10 F 6 '19

- National board of fire underwriters**  
Education to minimize electrical fire losses; fire-prevention manual for school children. Elec R 72:1006-7 Je 15 '18
- National bureau of wholesale lumber distributors**  
Organization. Am Lumberman 2244:42 My 18 '18
- National capital building commission**  
National capital building commission report. Am Arch 113:65 Ja 16 '18
- National cash register company**  
58,000 square feet of floor space in 30 days. Il Ind Management 56:134 Ag '18
- National characteristics**  
Have Americans national characteristics? Sci Am 119:308 O 19 '18
- National coal association**  
Activities of the association during 1918. J. D. A. Morrow. Coal Age 15:111-12 Ja 16 '19  
Annual meeting, Philadelphia, May 28. Coal Age 13:1015-17 Je 1 '18; Power 47:891-2 Je 18 '18  
Meeting, Chicago, May 22-24. Coal Age 15:1000-1 My 29 '19  
National organization for coal operators. J. D. A. Morrow. Coal Age 13:114 Ja 19 '18  
Planning for peace activities. Coal Age 15:149-50 Ja 16 '19
- National coal jobbers' association**  
2d annual convention, Buffalo, N. Y., June 4-5. Coal Age 13:1110 Je 15 '18
- National commercial gas association**  
Plans for amalgamation of the American gas institute and the National commercial gas association rapidly approaching completion. Am Gas Eng J 108:235-6, 365-9 Mr 9, Ap 20 '18; Gas Age 41:423-4 My 1 '18
- National committee of the confederated supply associations**  
Meeting, Cleveland, O., May 15. Metal Work 89:658-9 My 24 '18
- National committee on gas and electric service**  
Report of recent activities. Elec R 71:1061-2; 72:553-9 D 22 '17, Mr 30 '18; Elec W 71:428, 688, 739 F 23, Mr 30-Apr 6 '18  
Review of the committee's achievements. Elec R 72:990-1 Je 15 '18
- National conference for good city government**  
26th conference, New York, June 5-7. Munic J 44:499+ Je 15 '18
- National conference of tractor manufacturers**  
Manufacturers of tractors organize. Automotive Ind 38:612 Mr 21 '18
- National conference on Americanization in industries**  
Meeting, Boston, June 23-24. Am Ind 19:17-18 Jl '19
- National conference on city planning**  
11th meeting, Niagara Falls and Buffalo, May 26-28. Eng N 82:1133-4 Je 5 '19; Munic J 47:60+ Jl 26 '19
- National conference on war economy**  
Conference considers ways and means for securing greater economy and efficiency in public expenditures. Eng N 80:1151+ Je 13 '18
- National council for industrial defense**  
1st meeting of the newly appointed Advisory committee. Am Ind 18:13-14 Mr '18
- National council of American cotton manufacturers**  
Co-operative war work of cotton associations. W. D. Adams. Textile World 55:289+ Ja 11 '19  
Members; portraits. Textile World 53:5136 My 4 '18
- National council of lighting fixture manufacturers**  
Representatives of fixture and illuminating glassware manufacturers' organize at Pittsburgh. Elec R 74:311 F 22 '19
- National defense, Council of. See Council of national defense**
- National district heating association**  
Cooperation between the National district heating association and the American society of heating and ventilating engineers. D. L. Gaskill. Am Soc Heat & V E 23:585-90; Discussion. 591-4 '17  
Meeting of executive committee takes place of annual convention. Heat & Ven 15:61-2 S '18  
10th annual meeting, Pittsburgh, June 10-13. Dom Eng 87:487, 530-2 Je 14-21 '19; Heat & Ven 16:38-54 Jl '19; Metal Work 91:811-13 Je 20 '19; Power 49:992-3 Je 24 '19
- National editorial association**  
Annual convention, Little Rock and Hot Springs, Arkansas, June 3-8. Inland Ptr 61:509-12 Jl '18
- National electric light association**  
Abstracts of committee reports and papers presented at the annual convention, Atlantic City, May 20-22. Elec R 74:849-59 My 24 '19  
Activities of the N.E.L.A. R. H. Ballard. Elec R 75:527-8 S 27 '19  
Annual convention; Pacific Coast section meets with the Pacific division of the Electrical supply jobbers' association and the California association of electrical contractors and dealers. Il Elec W 71:1036-40 My 18 '18  
Committees on water power and co-operation; personnel. Elec R 75:954 D 6 '19  
East and West meet. Elec W 73:1256-7 Je 14 '19  
Epitomizes electric power situation at its annual convention, Atlantic City. Elec Ry J 53:999-1004 My 24 '19  
42nd annual convention, Atlantic City, May 19-22. Elec R 74:775-82 My 17 '19; Elec Ry J 53:1053-5 My 31 '19; Elec W 73:1076-1101 My 24 '19; Power 49:834-6 My 27 '19; J Elec 42:596-9 Je 15 '19  
Large plans for commercial section work. plan Elec W 74:486-7 Ag 30 '19  
Meeting of the Executive committee, New York city, Sept. 13. Elec R 73:502 S 28 '18  
Meeting of the Executive committee of the Commercial section, Association Island, N.Y. Elec R 75:405-6 S 6 '19  
Michigan section 6th annual convention, Ottawa Beach, Aug. 26-28. Elec R 75:359-60 Ag 30 '19  
N.E.L.A. administration commences active work. Elec W 74:313-14 Ag 9 '19  
N.E.L.A. lamp committee report; review. G. F. Morrison. Il Gen Elec R 22:767-75 O '19  
N.E.L.A. lighting exhibit. G. F. Morrison. Il Gen Elec R 22:776-82 O '19  
Plans of Advertising and publicity bureau, N. E. L. A. plan Elec R 75:573-4 O 4 '19  
Program for 42d annual convention, Atlantic City, N.J., May 19-22. Elec W 73:802-3 Ap 19 '19; Same. Elec R 74:680-2 Ap 26 '19  
Re-awakening of the electrical industry under the leadership of the National electric light association. R. H. Ballard. Elec R 74:982-4 Je 14 '19  
Southeastern section, Asheville, N.C., annual convention, Sept. 17-19. Elec W 74:719-21 S 27 '19  
Telegraphic report of proceedings of the fifteen sessions of the Atlantic City convention. Elec R 74:831-45 My 24 '19  
3rd annual convention of the Pacific coast section, Coronado Beach, California, April 30-May 2. Elec W 73:903, 947-50 My 3-10 '19; Elec R 74:753-7 My 10 '19; J Elec 42:475-91 My 15 '19  
34th annual meeting and 41st convention, Atlantic City, N.J., June 13-14. Elec R 72:992-8 Je 15 '18; Elec Ry J 51:1180-3 Je 22 '18; Elec W 71:1248-53 Je 15 '18; Power 47:926-8 Je 25 '18; Munic J 45:42+ Jl 13 '18  
Three and one-half years of achievement. A. E. Wishon. J Elec 43:109-10 Ag 1 '19  
War convention of New England section, Springfield, Mass., Sept. 27-28. Elec W 72:656-9 O 5 '18; Elec R 73:540 O 5 '18
- Public policy committee**  
Report of Public policy committee. J. A. Britton. J Elec 42:479-83 My 15 '19
- National electrical code**  
Changes in electrical committee in charge of code. Elec R 73:215 Ag 10 '18

National electrical code—*Continued*

- Combined electrical fire and safety code.  
M. G. Lloyd. Elec R 74:178-80 F 1 '19
- Devereux's list of changes in the 1918 edition of the National electrical code. Elec R 73: 902-4, 945-7 D 7-14 '18; Correction. Elec W 73:1342 Je 21 '19
- Discussion of code rule on interbuilding connections. H. S. Wynkoop. Elec R 75:882-3 N 22 '19
- Discussion of code rules on high-potential systems. G. S. Lawler. Elec R 75:822-4 N 15 '19
- Electrical code covering both fire and accident prevention. Elec R 73:629-30 O 19 '18
- Electrical committee of the National fire protection association expands its organization for revision of National electrical code. Elec R 74:426-7 Mr 15 '19
- Questions on the National electrical code, with replies by members of the executive committee of the National association of electrical inspectors. Elec R 72:251-2, 531-2 F 9, Mr 23 '18
- Report of committee. Elec R 74:180-1 F 1 '19
- Revision of code rules on motors and related subjects. Elec R 74:1092 Je 28 '19; Same. Elec W 73:1405 Je 28 '19
- Structural service department. Am Inst Arch J 6:315 Je '18
- Suspension of the rule calling for marking of wires to facilitate polarity identification. Elec W 72:268 Ag 10 '18; Same. Elec R 73: 222 Ag 10 '18
- See also National electrical safety code
- National electrical contractors and dealers' association  
Standardized accounting system. chart J  
Elec 43:168-70 Ag 15 '19
- National electrical contractors' trading association  
Electrical contractors' association of England forms separate corporation to guarantee work of its members. Elec R 72:207 F 2 '18
- National electrical credit association  
20th annual meeting, Cincinnati, June 13-14. Elec R 74:1039-40 Je 21 '19
- National electrical proving house, Great Britain  
Scheme for an electrical proving house. Inst E E J 56:26-7 Je '18
- National electrical safety code  
Combined electrical fire and safety code.  
M. G. Lloyd. Elec R 74:178-80 F 1 '19
- Electrical code covering both fire and accident prevention. Elec R 73:629-30 O 19 '18
- Is the National electrical safety code suitable for California? E: B. Rosa. J Elec 43:57-9 J1 15 '19
- National electrical safety code. G: E. Quinan. J Elec 43:54-7 J1 15 '19
- Proposed changes in part I, National electrical safety code. Elec R 75:580-1 O 4 '19
- Proposed changes in part II, National electrical safety code. Elec R 75:944-8, 982-6 D 6-13 '19
- Rules for the installation and maintenance of electrical utilization equipment. Elec R 72: 467-71, 527-8, 566-9, 607-8, 639-41, 689-91 Mr 16-Apr 20 '18
- Safe installation of electrical utilization equipment. Elec R 72:434-5 Mr 9 '18
- Scope and application. U S Bur Stand Circ 72:1-84 '18
- Structural service department. Am Inst Arch J 6:315-16 Je '18
- Year's progress in electrical safety work. M. G. Lloyd. Elec R 72:33-5 Ja 5 '18
- National engineering council  
Scheme of organization for National engineering council suggested. L. B. Smith. Eng N 83:190 J1 24 '19
- National fire protection association  
Important matters discussed at 23rd annual meeting, Ottawa, Ontario, Canada, May 6-8. Am Arch 115:814 Je 11 '19
- Meeting, New York, March 4-5. Elec W 73: 542-3 Mr 15 '19
- Personnel of Underwriters' electrical committee. Elec W 72:218 Ag 3 '18
- 22d annual convention, Chicago, May 7-9. Am Lumberman 2243:49 My 11 '18; Munic J 44:460+ Je 1 '18
- National foreign trade council  
Delegates from iron, steel, machinery and allied trades at 1918 convention. Iron Age 101:1118-19 Ap 25 '18
- 5th annual convention, Cincinnati, April 18-20. Am Lumberman 2240:37; 2241:46-7 Ap 20-27 '18; Automotive Ind 38:805-6 Ap 25 '18; Iron Age 101:1068-72+ Ap 25 '18; Iron Tr R 62:1059-62 Ap 25 '18; Ry Age 64:1061-3 Ap 26 '18
- Less government interference is the demand of foreign trade convention. A. Sinsheimer. Automotive Ind 40:935-41 My 1 '19
- 6th National foreign trade convention, Chicago, April 24-26. Ry Age 66:1087-90 My 2 '19; Iron Age 103:1161-8 My 1 '19
- National forests. See Forest reserves
- National founders' association  
22d annual convention, New York, Nov. 13-14. Iron Age 102:1280-1 N 21 '18; Iron Tr R 63:1189-91 N 21 '18
- National gas safety code  
Work of U.S. Bureau of standards in gas field told in annual report. S. W. Stratton. Am Gas Eng J 110:24-5 Ja 11 '19
- National good roads show  
10th show, New York, Feb. 25-28. il plan Good Roads n s 17:108-10+ Mr 8 '19
- National guard (United States). See United States—Militia
- National hardware association  
7th annual meeting, Pittsburgh, May 24-25. Iron Age 101:1418-19 My 30 '18; Metal Work 89:717-20 My 31 '18
- National hardwood lumber association  
21st annual convention, Chicago, June 20-21. Am Lumberman 2249:38-41+; 2250:47-53 Je 22-29 '18
- 22d annual convention, Chicago. Am Lumberman 2301:55-8; 2302:51-5 Je 21-28 '19
- National highway traffic association  
Annual meeting, New York, May 14. Good Roads n s 17:217 My 17 '19; Eng N 82:1036 My 22 '19
- National industrial council for waterworks undertakings  
Inaugurated, April 3rd, 1919. A. E. Filling. Engineer 128:28, 30 J1 11 '19
- National industrial traffic league  
Annual convention, Cincinnati, Nov. 20-21. Ry Age 65:963-6 N 29 '18
- Annual meeting, Chicago, Nov. 12-13. Ry Age 67:1013-14 N 21 '19
- Meeting, Buffalo, N.Y., Aug. 29-30. Ry Age 65: 453-5 S 6 '18
- Spring meeting, Chicago, March 21-22. Ry Age 64:792-3 Mr 29 '18
- Spring meeting, New Orleans, March 11-12. Ry Age 66:837-8 Mr 28 '19
- National labor board. See United States—National war labor board
- National lime association (formerly National lime manufacturers association)  
Reorganization. Concrete 15:sup74 N '19
- National lime manufacturers association  
16th annual meeting, Cleveland, O., June 19-20. Concrete 13:sup6 J1 '18
- National lumber manufacturers' association  
Opportunity. W. Compton. Am Lumberman 2292:49-50 Ap 19 '19
- 16th annual meeting, Chicago, May 20-22. Am Lumberman 2245:44-54 My 25 '18
- National machine tool builders' association  
Annual meeting, New York, Dec. 10-11. Am Mach 49:1149-50 D 19 '18
- 18th annual convention, New York, Oct. 15-16. Iron Tr R 65:1136-7 O 23 '19; Iron Age 104:1078-9 N 27 '19; Mach 26:275 N '19
- Semiannual convention, Atlantic City, N. J., May 16-17. Iron Age 101:1330-4+ My 23 '18; Iron Tr R 62:1331-3 My 23 '18; Am Mach 48:959-67 Je 6 '18



- National machine tool builders' assn.—*Cont.*  
Semi-annual meeting, Atlantic City, May 12-13. *Am Mach* 50:1004-5 My 22 '19; *Iron Age* 103:1290-2 My 15 '19; *Mach* 25:924-5 Je '19
- National merchant marine association  
Organized as a result of a convention held in Washington on Jan. 23-24. *Marine R* 49:149 Mr '19
- National metal trades association  
20th annual convention, New York, April 24-25. *Iron Age* 101:1136-41+ My 2 '18; *Iron Tr R* 62:1125-7 My 2 '18  
21st annual convention, New York, April 23-24. *Am Mach* 50:871-2 My 1 '19; *Iron Age* 103:1153-7 My 1 '19; *Iron Tr R* 64:1157-9 My 1 '19
- National non-partisan league  
Farmers' non-partisan league. F. G. R. Gordon. *Am Ind* 18:14-15 F '18  
Menace of the Non-partisan league. W. H. Barr. *Iron Age* 101:1141+ My 2 '18
- National parks  
See Forest reserves; Zion national monument
- National physical laboratory, Great Britain  
National industrial research laboratory. R. Glazebrook. *Engineer* 125:180-1 Mr 1 '18; Same. *Eng & Contr* 50:423-5 O 30 '18  
Scheme for an electrical proving house. *Inst E E J* 56:26-7 Je '18
- National pipe and supplies association  
9th annual convention, Cleveland, O., May 13-14. *Dom Eng* 83:255-7 My 18 '18; *Iron Age* 101:1351 My 23 '18; *Metal Work* 89:680-3 My 24 '18  
10th annual convention, Pittsburgh, Pa., May 12-13. *Dom Eng* 87:297-9 My 17 '19; *Metal Work* 91:621-3 My 16 '19
- National railway appliances association  
Exhibition in Chicago. *Iron Tr R* 62:734-5 Mr 21 '18  
10th annual meeting, Chicago, March 19. *Ry R* 62:443-4 Mr 23 '18
- National research council  
Annual meeting division of chemistry and chemical technology. *J Ind & Eng Chem* 11:481-3 My '19  
Council made permanent. *Eng N* 80:1017 My 23 '18  
Division of engineering of the National research council. G. H. Clevenger. *Mech Eng* 41:631 Jl '19  
International research; work of American and British societies on steel—flakes in gun steel. H. M. Howe. *Iron Age* 103:1710 Je 26 '19  
Meetings of the executive committee of the division of chemistry and chemical technology. *J Ind & Eng Chem* 11:694-7 Jl '19  
National engineering societies and the National research council. G. E. Hale. *Am Inst E E Pro* 37:1223-36 O '18; Same. *Am Soc M E J* 40:825-9 O '18; Excerpts. *Am Inst Min E Bul* 142:sup38-42 O '18  
National research council. *Mech Eng* 41:559 Je '19  
Organization of research work on a national scale. *Eng & Min J* 105:1136-7 Je 22 '18; Same. *Chem & Met Eng* 19:335 S 15 '18  
Organizing America's research work on a national scale. C. W. Baker. *Eng N* 80:1079-80 Je 6 '18  
Permanent organization. *Mech Eng* 41:485-6 My '19  
Reconstruction problems to be studied. *Eng N* 81:511 S 12 '18  
Report of pyrometer committee of National research council. G. K. Burgess, diags *Am Inst Min Bul* 153:sup2271-2300 S '19; Discussion. 156:8194-8 D '19  
Research of America. R. A. Millikan. *Illum Eng Soc* 13:633-5 no 9 '18  
Stimulation of research. *Sci Am* 120:518-19+ My 17 '19  
To be made permanent body; executive order of President Wilson. *Am Inst E E Pro* 37:sup 189 Je '18; *Am Inst Min E Bul* 139:sup 6 Jl '18; *Am Mach* 48:1116 Je 27 '18
- War activities of our technical societies. C. W. Rice. *Sci Am* 118:586+ Je 29 '18  
War activities of the National research council. G. E. Hale. *Am Inst E E Pro* 37:909-34 Jl '18; Same cond. *Am Inst Min E Bul* 140:sup39-45 Ag '18  
Work of the National research council. H. M. Howe. *Iron Age* 102:1023-5 O 24 '18; Same abr. *Am Inst Min E Bul* 144:1715-19 D '18
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**Pipe couplings.** See Pipe joints

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Cost and method. B. Daniels. See monthly numbers of Inland printer

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Automatic imposition; how to do better work easily in one-third usual time on shortrun editions. G. H. Brown. *diags* Inland Ptr 61:444-6 J1 '18

Cost of lock-up. Inland Ptr 60:635 F '18

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Half-tone printing on bond-paper. E. St John. Inland Ptr 62:570 F '19

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**Sheet metal work—Pattern making—Continued**

- Pattern for an irregular tapering boss joining a square tee joint. diags plans Metal Work 90:127-9 Ag 2 '18
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- Patterns for hoppers with different outlet. diags Metal Work 91:828-9; 92:34-5 Je 27, Jl 11 '19
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- Hydraulically operated shell production machinery. I. W. Chubb. *il Am Mach* 48:939-43 Je 6 '18
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- Inside finishing tool for shells. R. S. Myers. *diags Am Mach* 48:337 F 21 '18
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**Shells (projectiles)—Manufacture—Continued**

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*See also* Roofs; Shingling

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- Unusual form of roundhouse smoke jack. il diag. plan Ry Age 67:155-7 JI 25 '19
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- Preservation of food products by drying. G. C. Shadwell. il diag. Am Soc Heat & V E 23:537-44 '17

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